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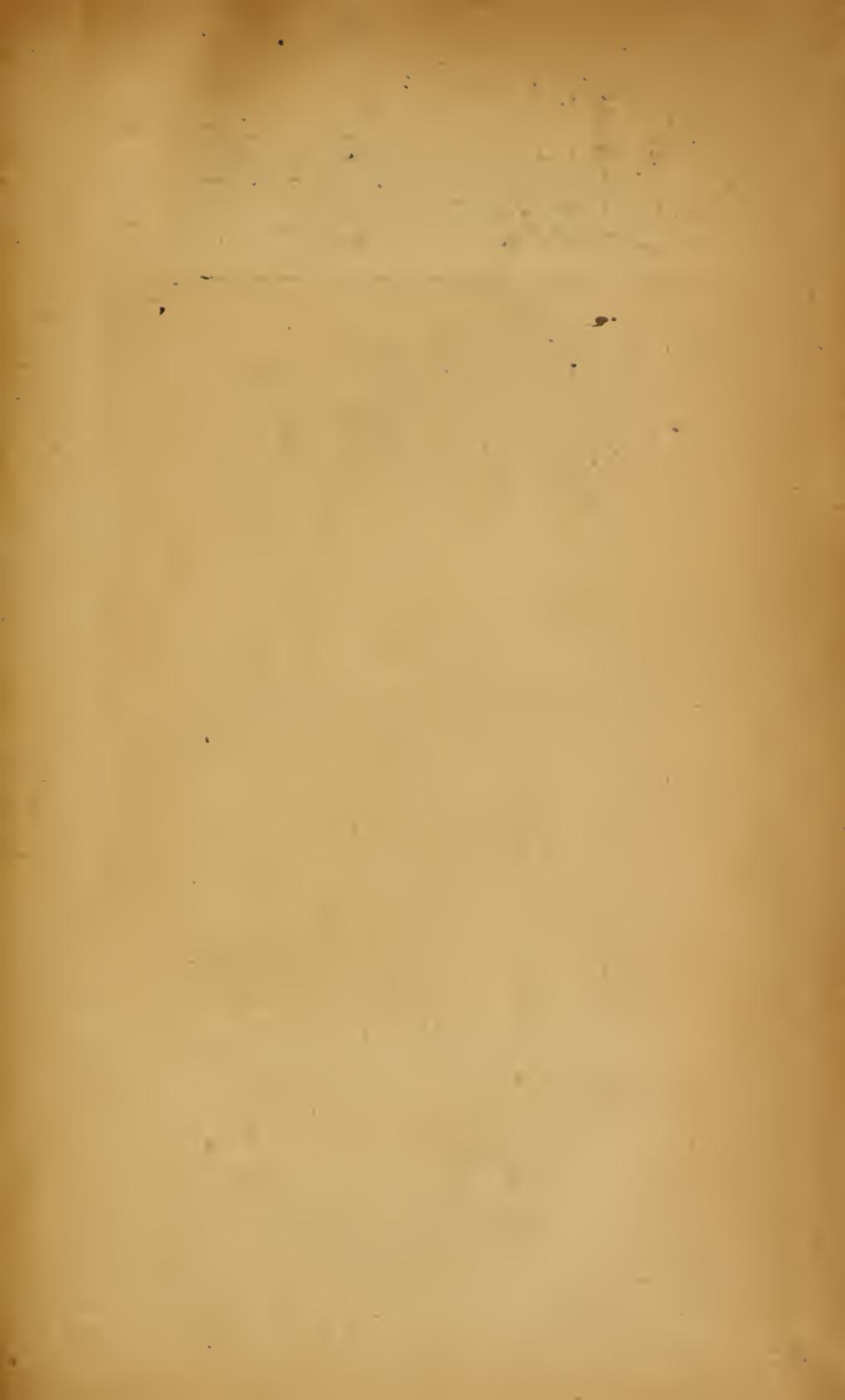
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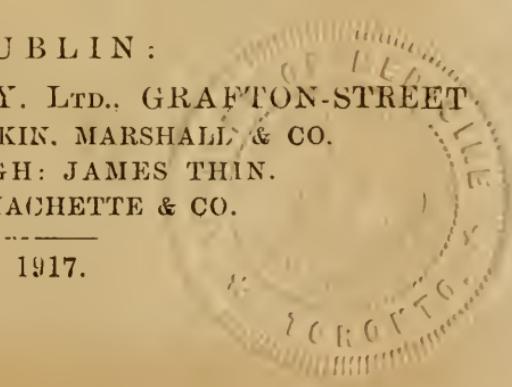
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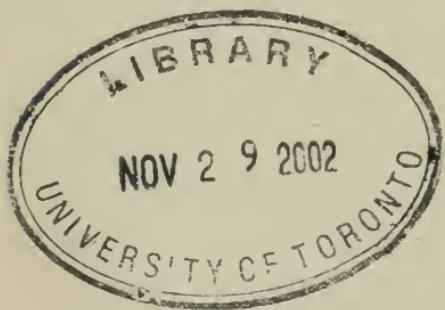
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PART I. ORIGINAL COMMUNICATIONS

ART. I.—*Fevers amongst the Troops in Egypt.*^a By T. GILLMAN MOORHEAD, M.D. Dubl.; F.R.C.P.I.; Physician to the Royal City of Dublin Hospital; Professor of Practice of Medicine, Royal College of Surgeons in Ireland.

OWING to the fact that I have already made my period of work in Egypt the subject of a lecture at which some members of the Academy were present, I have had some considerable difficulty in preparing the present communication, in accordance with our generally recognised principle that nothing must be read at the Academy that has previously been communicated elsewhere. My lecture at the Royal College of Surgeons was of a semi-popular nature, and in consequence I have endeavoured now to deal almost entirely with the scientific side of the work, but for any overlapping that occurs I offer apologies.

In the present paper I have confined myself almost entirely to the febrile diseases that I encountered amongst the troops, as to deal with the medical aspects of war

^a Read before the Section of Medicine in the Royal Academy of Medicine in Ireland on Friday, January 26, 1917.

work in the East would involve too lengthy a paper. I hope, however, on a future occasion to deal with some general medical problems now purposely left unconsidered.

On January 1st of this year (1916), after a pleasant voyage, I arrived in Alexandria, and on reporting to the A. D. M. S. was directed to proceed to the —— General Hospital, to which I was informed I had been already detailed in London. I accordingly did so, and commenced work on the following day.

During the course of the following weeks I gradually acquired a knowledge of the general medical establishment in Egypt, an establishment which had to cope with the requirements of the large Army then in the country, and with a large percentage of the medical and surgical casualties from Gallipoli, and later with cases from Mesopotamia. As far as Alexandria was concerned I found that four large general hospitals existed for European troops, two hospitals for Indian troops, and that, in addition, the local Egyptian Government Hospital had been to a large extent placed at the service of the Military Authorities. Further, numerous convalescent homes existed—varying in size from one capable of receiving well over 1,000 patients, to smaller homes adapted for the use of from 30 to 40 officers. Of the four general hospitals my own was the largest, and in many ways the best situated. It was capable shortly after the beginning of the year 1916 of accommodating more than 2,500 patients, and was managed by a staff of forty medical officers. The buildings, three in number, which formed its nucleus, were known collectively as Victoria College, and owed their origin to the fact that some fifteen years ago the citizens of Alexandria, desiring to erect a memorial to Queen Victoria, decided that the best tribute they could pay to her memory would consist in founding and properly housing a school where a first-class European education could be obtained. Like most other European buildings in Egypt, the College was erected on a generous scale, as far as both internal and external space was concerned, the large build-

ings being surrounded by several acres of enclosed land. The College was situated about seven miles from the centre of Alexandria, at the terminus of a suburban tram line, and was practically the last outpost of the suburbs of the city. Of the three buildings, one had been allocated entirely to surgical work, one to general medical work, and one to enteric cases, but only a small number of the patients, comparatively speaking, were treated within the buildings, and by far the larger number were dealt with in huts and tents, which, as far as possible, were grouped into special areas, according to the type of cases admitted : thus, there was a special compound for dysentery cases, one for ordinary infectious cases, one for pulmonary tuberculosis, and so on ; and finally, there was a large compound for venereal work.

My own work within the hospital consisted in superintending generally all the medical cases, and seeing any cases on the surgical side for which a medical opinion might be required. I generally started the day by visiting a ward with about 60 beds, which was established shortly after my arrival, and which was called the Observation Enteric Ward. Into this all cases of doubtful pyrexia were admitted, and from it were weeded out each day cases to their appropriate destination. This ward was to me more interesting than all the remainder of the hospital, as here one had to differentiate not merely the fevers with which one is familiar at home, but also malaria, relapsing fever, amoebic hepatitis, sand-fly fever, sunstroke, unusual dysenteries and the like.

The cases coming under the group term "enteric" were at first numerous, and of a rather severe type. We were, in fact, faced during January, February, and March with an extensive epidemic, mainly localised in one large camp. Analysis of these cases showed that 85 per cent. at least, and I think I may say later on 95 per cent., were cases of paratyphoid. Cases due to the *B. typhosus* itself were rare, and any bad cases I saw were in uninoculated patients. Of the two varieties of paratyphoid, para A.

was much more frequently met with than para B. Up to the end of March we were dealing for the most part with patients who had not received the T. A. B. vaccine; after March most patients admitted had had both typhoid vaccine independently and also either one or two doses of T. A. B.

As regards diagnosis, the rule was made that an immediate blood culture was to be performed on any case which was regarded as suspicious on preliminary examination. Five cubic centimetres of blood were withdrawn from a vein and inoculated into $2\frac{1}{2}$ per cent. taurocholate solution. If any growth occurred it was plated out the next day, and usually within 48 hours an exact diagnosis was possible in those cases that afforded a positive blood culture. These, however, were not a very large proportion of the whole, and consequently other methods were required. Personally, if a blood culture proved sterile, I relied practically entirely on clinical evidence, but Widal tests were carried out systematically. In relation to these tests I soon concluded that in inoculated patients they were valueless. Many interesting details came to light, but the whole question of agglutinins is too complicated for me to deal with it at present.

I may, however, point out that when a patient who has been inoculated against the *B. typhosus* becomes infected with a paratyphoid bacillus, the first apparent effect upon his blood is to increase enormously his latent agglutinins against the *B. typhosus*, and that it is only later on that the agglutinins against the infecting paratyphoid organism appear. This fact is generally admitted, but I soon convinced myself that other pyrexias could similarly increase the anti-typhoid agglutinins, and therefore one was compelled at once to abandon the Widal test as far as the *B. typhosus* was concerned. Widal's for paratyphoid were fairly satisfactory, till one began to meet patients who had received the T. A. B. vaccine. In such cases the agglutinin test was of little use. I had a series of patients who had been admitted for non-pyrexial condi-

tions, and who had had this vaccine tested, and found that practically all of them gave as pronounced a positive reaction as those patients who actually had paratyphoid fever. Some bacteriologists still maintain that if the test is done every second day and a rising titre is obtained to say para A. or B., a definite diagnosis is justifiable, but few patients are willing to submit to these frequent punctures, and few bacteriologists relish the performance of so many tests. Owing to the failure of the Widal test there is a disposition now to rely more on cultures from the urine or faeces, but although I was one of those who at first advocated these, I soon found that a clinical diagnosis of the group "enterica" could as a rule be made certainly long before the bacteriologist could arrive at a conclusion by these methods.

Of the clinical symptoms I have very little to say, as I have already published a paper on the subject. If asked to state briefly how paratyphoid differed from typhoid I would say that a sudden onset was much more common, and that as a rule the disease was milder and shorter. A common early symptom is pain and pronounced tenderness on pressure over the splenic region, while enlargement of the spleen occurs at a much earlier date than in typhoid and to a greater extent. Mentally, there are drowsiness and lethargy at first, but later on there is usually much alertness of mind, so that on walking through a ward one is struck by the fact that several patients with a temperature of perhaps 103° F. or higher are reading books or chatting to their neighbours. Early severe frontal headache is present, but disappears in the second week. The pulse is even slower than in enteric, often being 60 per minute, or even less, at the height of the fever. Spots are usually late in appearing : they are often abundant, and are browner and larger than the rose spots of typhoid.

As already stated, differential diagnosis presents more problems in Egypt than at home owing to the prevalence of relapsing fever, malaria, &c. ; but over and above these

diseases one is also met with the fact that a palpable spleen seems to occur in almost any pyrexia, and is even met with in patients in whom no history of disease at all is obtained. The value of an enlarged spleen from a diagnostic point of view is in fact very slight. After the T. A. B. inoculation had become common, an interesting new disease made its appearance, and was for the first time recognised in a General Hospital. This was a pyrexia, apparently caused by the *B. faecalis alkaligenes*, another member of the enteric group of organisms. Altogether, up to my departure, 21 cases were met with in which this organism was isolated from the blood. The symptoms to which it gave rise resembled at first enteric, but splenic enlargement seldom took place, and after about five days the temperature usually fell to normal, to be followed, however, after an interval of three or four days by a second but shorter pyrexial period. Sometimes a third or even a fourth period of pyrexia occurred. The blood of patients from whom this organism was isolated developed contra-agglutinins, while other enteric cases would not agglutinate the *B. faecalis*. After our discovery of the condition the same organism was found in several other hospitals in Egypt, and the number of cases of P. U. O. began to diminish.

From the Army point of view paratyphoid presents many other interesting aspects, but I will only refer, and in the briefest terms, to two more. In the first place, I found that the mildness of the symptoms in many cases led to the use of purgatives rather freely, and to comparative abundant feeding : both are a mistake. Unwise treatment will readily convert a mild case into a serious one, and a very short experience should convince anyone that a very strict liquid diet and complete abstention from the use of purgatives during the pyrexial period is the only safe course to adopt. Vaccines I used extensively in those cases where the actual causative organism was identified. In doses of 100 millions given early they appeared useful ; occasionally they seemed to be followed by striking improvement ; more often their effect was nil.

As regards carrier cases, it was felt from the beginning that very strict precautions should be taken. In consequence, all cases were at first sent home in the convalescent stage, and were thoroughly investigated before returning to duty. Later on, when equipment was available, we were able to undertake this work ourselves, and every case was subjected to a triple test of urine and faeces before being returned to his unit.

Relapsing fever, of which I saw a good deal, on admission resembles fairly closely paratyphoid with an acute onset, but as a rule can be distinguished by the general severity of symptoms. The face is usually flushed, intense frontal headache is present, there are often severe general pains with much restlessness, and from the first the spleen may be much enlarged, though this last is by no means a constant symptom. In every case I saw, however, there was one feature that contrasted strongly with paratyphoid—namely, the rapidity of the pulse: so that the rule was even made that a blood film was to be examined in all cases where this symptom was noted. The spirochæte that produces the disease varies slightly in size and characters according to the locality, and also varies as regards its intermediate host. The Egyptian type, which is apparently identical with that found in Southern Europe, is almost certainly transmitted by lice, while in West Africa and the Congo the tick is the insect by which the spirochæte is conveyed to man. All varieties stain readily, though not deeply, by ordinary aniline dyes, dilute, carbol-fuchsin giving as good results as any. Leishmann's stain and Giemsa's also gave satisfactory results. When a certain diagnosis is made the best treatment consists in giving at once an intravenous dose of "606" or "914." I found that .3 gramme of either was quite sufficient to bring about not merely an immediate fall of the primary fever, but also to prevent subsequent relapse. A larger dose should not be given, and even with the doses I have named one must be prepared for a subsequent fairly severe collapse. I usually found that about

five hours after the injection the patient became attacked with severe diarrhoea and vomiting, the pulse became fast and running in character, the extremities cold, and profuse perspiration took place. Coincident with all this, the temperature fell abruptly, perhaps from 104° F. or 105° F. to subnormal. After a couple of hours the symptoms of collapse pass off, the patient falls asleep, and next morning feels perfectly well. The result is, in fact, as dramatic as anything I have ever encountered as a result of treatment. In my opinion the collapse is due not to the drug injected, but to the rapid destruction of spirilla and the consequent liberation of toxins which is brought about. The first case I treated caused me considerable alarm, as none of the books or papers I have seen make the smallest reference to the severe reaction I have described, but I soon found that the patient responded readily to ordinary restorative measures, and, therefore, I came to look on this collapse as quite a normal occurrence. There were no complications and no fatalities amongst the cases we treated. At one time the supply of both "606" and "914" ran out, and I then tried the use of mercury and potassium iodide in big doses, but without effect: one of the cases treated in this way having no less than four relapses.

Next to paratyphoid the dysentery cases constituted the largest single group of admissions of any one disease. At first most of the cases were of the amoebic or mixed variety, but soon after February these began to fall off in number, as the cases from Gallipoli were gradually disposed of, and bacillary dysentery then made its appearance, and for several months numerous cases were admitted almost daily. After June some amoebic cases again appeared amongst troops on their way home from Mesopotamia, but as far as Egypt itself was concerned no recurrence took place.

The whole subject of dysentery is too big and complicated to permit of more than the most cursory reference. The name is essentially a clinical one, and is applied to

a group of diseases characterised pathologically by inflammation of the mucous lining of the colon, and clinically by the symptoms of abdominal pain, tenesmus, and the passage of stools containing mucus, and frequently blood.

Two main varieties—namely, amoebic and bacillary—are recognised, but mixed cases also occur, and similar symptoms may be produced by protozoon parasites distinct from amoebæ.

The presence of amoebæ in diarrhoeic stools was demonstrated by Lambl in 1859, but to Lösch belongs the credit of definitely suggesting their importance as the cause of dysentery in 1873, and of applying the term *amoeba coli* to the protozoa he described. Soon after his description other workers found amoebæ in the motions of quite normal individuals, and doubt was thrown on the importance of Lösch's observations. Kartulis then undertook a research in the numerous dysenteric cases admitted to the Government Hospital, Alexandria, a hospital to which he was then and is still the pathologist, and not only demonstrated the presence of amoebæ in his cases, but also showed that dysentery could be produced in cats by the injection per rectum of stools containing amoebæ, and that amoebæ could be found in the mucus passed by these infected animals. Some doubt nevertheless continued in the minds of pathologists until Schaudinn published his researches in 1903. He definitely proved that the human intestine may be infected with two varieties of amoebæ—one harmless and the other pathogenic. For the former he retained the name *amoeba coli*, while he christened the latter *amoeba histolytica*, owing to its power of eating its way into the colonic mucous membrane. It is now universally admitted that the *amoeba histolytica* is the cause of amoebic dysentery.

These two forms of amoebæ differ in certain characteristics, but are not easily distinguished in the freely mobile stage without much experience. Speaking generally, it may be said that an amoeba presenting a fairly sharp dis-

tinction between its endoplasm and its ectoplasm, and containing within it red blood corpuscles, may be regarded as almost certainly the amoeba histolytica. Both organisms under unfavourable circumstances readily form cysts, which are frequently passed in large numbers in the stools, and which, fortunately, are easily distinguishable. Thus, the amoeba coli gives rise to circular, well-defined cysts, containing eight nuclei, while the amoeba histolytica forms smaller, more refractile cysts of a slightly greenish colour when viewed by transmitted light, and never containing more than four nuclei. To this type of cyst is given the name amoeba tetragena, and its presence in mucoid stools is positive proof of the existence of amoebic dysentery. Free amoebæ are very easily destroyed, but the cysts are fairly resistant, and it is through them that infection is spread.

As regards mode of transmission, it is almost certain that infection may be directly conveyed by vegetables, fruit and other articles of diet that have come directly contaminated by faeces; but probably one of the most striking medical discoveries made during the war has been the demonstration by Wenyon of the part played by the common house fly. Wenyon allowed flies to settle on faeces containing cysts, and on removing them found that within 20 to 30 minutes they began to pass droplets of liquid excreta in which cysts could be found with the greatest ease. Even as long as sixteen hours after being fed with the cyst containing material, cysts were still detectable in the excreta, so it is plain that flies that have a range of flight of about a mile can very readily act as transmitters of infection. This discovery of Wenyon's added impetus to the campaign against flies that had been waged in Egypt since last winter, and was probably responsible for the great diminution in amoebic dysentery cases to which I have alluded.

It is plain that not only is it important to kill flies and to destroy their breeding places, but also to prevent the access of those that survive to food and any infected stool.

Stringent precautions against this were taken everywhere throughout Egypt where troops were located, and special care was taken by burning and disinfecting horse manure to destroy fly larvae and eggs; while, of course, the question of latrines and general disposal of human excreta was thought out according to the best means available in each district. This last precaution is most essential, as an examination of 1,000 apparently healthy men from Gallipoli revealed the presence of 80 carriers of pathogenic cysts.

When amoebæ do reach the colon they multiply rapidly, and making their way through the mucosa produce necrotic changes in the sub-mucosa, which leads to extensive irregular ulceration. This ulceration may involve the entire colon or may be confined to a small area. The symptoms that result may be acute or, even from their onset, chronic; and the acute form may vary in intensity from a quite mild disease to one with the most intense pain, almost continuous diarrhoea, and the passage of mucus, blood and gangrenous intestinal sloughs. The most common variety is one in which the patient has had mild diarrhoea for two or three days, and then begins to suffer from very frequent stools with tenesmus, and notices for the first time that blood and mucus are present. There is usually no rise of temperature, no nausea or sickness, and there is a pronounced leucocytosis. Physical examination is negative, except that one may detect the presence of spasm and thickening of the cæcum or of other parts of the colon.

The chronic cases include patients with persistent slight mucoid diarrhoea, and completely latent cases, in which cysts may be found only in the course of routine examination. It is almost certain, however, that even in this last-mentioned variety some small scattered ulcers exist.

The treatment of amoebic dysentery has been comparatively simple since the discovery by Rogers a few years ago of the specific action of emetine. Without going into full details, one may state at once that each patient should

be given a course of 10 to 12 grains of emetine, administered in daily doses of one grain hypodermically. In spite of the fears expressed by some regarding the toxic action of this drug it may be stated dogmatically that these doses are quite safe. Only once during my entire stay did I meet with a case in which bad effects were apparently produced, and then only temporarily. Patients should be kept in bed during the treatment, and it is only right to add that when the drug is pressed, as it was in the early stages of the war, in a few cases up to 30 to 40 grains, nervous tremor, palpitation and anaemia may result. If a 12-grain course fails to destroy all cysts, ipecacuanha by the mouth or lavage of the colon with saline solution containing one grain of emetine to the pint is often useful. If a case is seen early, and a 12-grain course given, nothing more is as a rule required.

The remaining treatment is common sense. Liquid diet, with at first no milk, hot applications to the abdomen, and a daily dose of some saline aperient are all required. If pain is severe a small dose of morphine may be required, but this should never be given unless absolutely necessary. Much care also is required in returning to solid diet.

Cases that have become chronic—as, unfortunately, many do when the disease starts in the trenches or elsewhere, where systematic early treatment cannot be carried out—may strain one's resources to the utmost, but into the details of such cases it is now impossible to go. Many of them become secondarily infected with bacilli, and hence the difficulty of cure is increased.

The complications of amoebic dysentery that I encountered were three in number—namely, (1) amoebic liver abscess and amoebic hepatitis, (2) amoebic arthritis, and (3) post-dysenteric meteorism.

1. Liver abscess was rare, though I saw one case in which the abscess was as large as a football, and formed an enormous swelling, filling up the whole of the subcostal region. Amoebic hepatitis was more common, and by no means easy to diagnosticate. Several cases were admitted as

suspected enteric, and I saw them in the surgical wards, where they had perhaps been for a fortnight or more suffering from obscure pyrexia. Physical examination would perhaps show some enlargement and tenderness of the liver, but as this is far from uncommon in paratyphoid, one could not exclude this disease till a negative blood culture was returned, and other tests proved negative. As a rule, a history of previous dysentery was obtained, but the final test depended on the use of emetine. When this drug is given the temperature falls at once, the patient at once feels better, and after perhaps weeks of listlessness and anorexia, begins to clamour for food, and to be allowed to get up. It is of course an axiom in tropical countries that such cases may be mistaken for paratyphoid, but I confess until I had encountered the cases myself I was sceptical as to their existence.

2. Concerning amœbic arthritis I have already published a short article, and I need only say here that I met with several cases of multiple arthritis resembling gonorrhœal arthritis which failed to clear up on any treatment till their true nature was recognised. A course of emetine brought about in these cases as rapid a cure as that to which I have already referred in cases of amœbic hepatitis.

3. Post-dysenteric meteorism. Quite a large number of patients were admitted complaining of abdominal distension, of flatulence and general digestive disturbances, which had set in gradually a month or so after returning to duty convalescent from severe dysentery. On examination the abdominal distension was often enormous, but there was no constipation, and apart from the abdominal condition nothing could be made out on examination. Bismuth meal examination threw no light on the condition, and revealed no undue stasis, and treatment was quite unavailing, though every available remedy, including massage, &c., was tried. What the exact nature of these cases is I am at a loss to understand. I thought at first that stenosis might exist somewhere in the colon, but the *x*-ray examination negatived this idea, and I can now

only suppose that it was due to general intestinal atony. As far as I am aware, nobody has previously described this condition, and at first I failed on inquiry to hear of similar cases in other hospitals. Later on, however, Col. Lister, of the —— General Hospital, told me that he also had seen several such cases, and had also completely failed to benefit them. All the cases I saw were quite unfit for duty, and all ultimately were invalided home.

Of bacillary dysentery we had even more than of amoebic, and to fully describe its characteristics and varieties, of which we recognised at least six clinical forms, would occupy an entire paper. I will, therefore, deal with it only in the briefest possible manner.

Numerous allied bacilli are now known to be capable of causing it, but the two best known are the Shiga and Flexner. These are distinguished from one another mainly by the fact that the latter ferments mannite and the former does not. From symptoms alone we found it quite impossible to say which bacillus was likely to be present, but more than 80 per cent. of the organisms actually isolated were of the Flexner type.

The inflammation produced is primarily one of the mucous membrane, and is usually extensive. As a rule it rapidly leads to superficial ulceration of the entire colonic mucosa. It differs from amoebic colitis in that the amoebic is essentially a disease of the submucosa, and isolated ulcers appear with healthy areas of mucous membrane between them, whereas in bacillary the involvement is from the surface, and healthy areas are not seen between the lesions. In bacillary colitis also the lower part of the ileum may be involved in the inflammation.

Clinically the symptoms usually set in suddenly with severe pain, colic, tenesmus, diarrhoea with blood-stained mucus, and rise of temperature. There are often marked toxic symptoms with rapid pulse and dry tongue, but there is no leucocytosis. All varieties, from very mild to very severe cases, occur.

The most acute cases of all resemble cholera, with profuse rice-water stools at first, the blood and mucus appearing only 24 to 48 hours after the onset. There are cramps in the legs and arms, the pulse becomes uncountable, the face is shrunken, blood pressure falls, and there are all the phenomena of extreme collapse, so that within a few hours from the beginning of the attack the patient may be almost moribund. Such cases, though they only formed a small percentage of the total admissions, were sufficiently numerous to require special arrangements to be made for their immediate treatment on arrival.

The treatment of bacillary dysentery is much the same as that for amoebic, except that instead of emetine one uses polyvalent anti-dysenteric serum. The usually recommended doses of this serum are much too small: most books suggest 10 to 20 c.c., but in an average case one should never give less than 60 c.c., and this should be repeated in 24 hours unless there is a very marked improvement. A bad case should receive an immediate dose of 100 c.c., repeated each day or every second day, until 400 c.c. have been given. In the very acute cases that I have described the serum must be given intravenously, and may be added to a couple of pints of hypertonic salt solution, which should be administered by the intravenous route at the earliest possible moment.

Provided a sufficient dose of serum is given, one expects to get rid of the blood and mucus in an average bacillary case in about a week. A few cases, however, run on much longer, and in those I found the best results were obtained by waiting for about a fortnight after giving 400 c.c. serum and then starting again. Under such circumstances one may encounter severe anaphylactic reactions, but in the very serious kind of case that is in my mind this risk must be taken.

Lavage of the colon in subacute and chronic cases with copper sulphate solution or silver nitrate is often distinctly helpful, and, of course, careful nursing is all-im-

portant. In all cases a preliminary big dose of castor oil must be given, and later on salines, as in amoebic dysentery.

If one should be called on to treat an acute dysentery under circumstances where it is impossible to distinguish between amoebic and bacillary, the undoubted proper course to pursue is to give both serum and emetine. Neither will do any harm, and if one merely administers one and hopes for the best, the patient may die or drift into a chronic stage before one has an opportunity of using the other, if the wrong remedy has been chosen.

Bacillary dysentery, as I saw it, had practically no complications. It leaves, however, prolonged debility, often with some cardiac dilatation.

In addition to dysentery and enteric many other diarrhoeal conditions were prevalent in Egypt. Indeed, as might be expected, gastro-intestinal troubles of one sort or another formed about one-half of all the medical illness encountered. Among the most interesting of the chronic non-ulcerative diarrhoeas is that due to *Lambilia intestinalis*, a flagellate easily recognised in the faeces either in its free or encysted form. It apparently produces irritation of the small intestine and colon, which results in the passage of frequent, often bright yellow, fermenting stools. In a few cases also mucus may be present. The best treatment consists in putting the patient to bed for a few days on liquid or semi-liquid diet and giving beta-naphthol in large doses.

Along with intestinal troubles we may classify jaundice, which was very widespread in Gallipoli, but of which I saw only about 70 cases. The whole subject of jaundice is at present much confused. A great many cases that occur in the war regions appear to be ordinary catarrhal jaundice, and some cases are undoubtedly the result of known infections, such as paratyphoid; where, however, the line is to be drawn between the ordinary catarrhal variety and Weil's disease is the difficulty, and when the term Weil's disease is to be dropped and the term Mediter-

ranean yellow fever used, is a still further difficulty. Some, indeed, use the terms Weil's disease and Mediterranean yellow fever as synonymous terms; and introduce the name camp jaundice as an extra term to connote the type of case which symptomatically intervenes between the catarrhal and the severe haemorrhagic or yellow fever type.

Camp jaundice as thus defined begins with three to four days' sharp fever, accompanied by general malaria, nausea and rapid pulse. About the fifth day jaundice appears, and gradually deepens; the liver becomes enlarged and tender; the spleen also is big, and a relative lymphocytosis develops. In some cases severe cardiac dilatation and symptoms indicative of myocardial poisoning are present. The jaundice usually lasts two or three weeks, and during convalescence there may be much debility. In several cases of mine blood and urine cultures were made, but all were sterile. Spirochætes also were looked for, but again with negative results. We, however, had none of the severe haemorrhagic cases in which spirochætes have been demonstrated by Inada and Ito in Japan, and by Adrian Stokes in Flanders.

There is a general agreement that whatever the bacterial cause of camp jaundice may be its occurrence is predisposed to by insanitary camp conditions, and by the consumption of spoiled or foul food; and at present it seems certain that preventive measures directed towards the improvement of camp sanitation is the only way in which we can hope to check the heavy incidence of the disease in trench warfare.

The other febrile conditions with which we had to deal do not require more than a few words, and I will only refer to a few special points which I think are of general interest.

In the first place, heat stroke is important, not only from its immediate effects, but also from the subsequent ill-health to which it gives rise, and as far as I can

determine it is a condition that has never been properly investigated. In using the term heat stroke I deliberately exclude heat exhaustion, which is much less serious, and refer only to those cases which start with severe headache, vomiting, great restlessness, cutaneous hyperesthesia, and hyperpyrexia. In the worst cases of this kind coma and paralytic symptoms may rapidly develop; but what interested me most was the general haemorrhagic tendency that these patients exhibited: thus, bleeding from the kidney and from the bowel may occur, and haemorrhagic exudation seems frequently to occur into the cerebro-spinal fluid. This last fact we discovered by doing punctures on all bad cases, and finding the fluid in each case definitely stained with blood. Culture of the fluid was in each case sterile. From a therapeutic point of view, we found that puncture gives relief, often immediate and permanent, to the headache, and also relieves the restlessness of the patient. As far as I am aware lumbar puncture has not been advocated previously as a treatment for sun-stroke, but my own limited experience leads me to urge that it should always in future be employed in bad cases, more especially those of a comatose or paralytic nature.

Cases coming back from Mesopotamia after suffering from sunstroke presented a special difficulty. Many of them looked perfectly well, but they all, without exception, complained of severe headache on the slightest exposure to the rays of the sun. Careful examination usually revealed nothing wrong, and one was tempted to think that the strong desire to return to "Blighty" led in many of them to definite malingering. If, however, a man complains of headache, refuses to work, and has a definite cause to which he can ascribe the onset of his alleged trouble, one is helpless, and therefore all these cases were invalidated home. I am bound to add that a few keen officers made similar complaints, so possibly all the men were quite genuinely unfit; but if any member of the Academy can tell me how to distinguish between a real

and an assumed headache under such circumstances I will be more than obliged.

Cerebro-spinal fever is a disease for which everyone is on the look-out in camps and barracks. We had a few cases, all of whom recovered after intra-spinal injections of Mulford's anti-meningococcic serum. These cases I do not want to discuss, but in connection with this disease I came across what to me was a new condition. One day I was asked to see a man in the Surgical Division who had been admitted for suspected tetanus. He was given an intrathecal dose of anti-tetanic serum, and seemed at first to improve. Then other symptoms appeared, and hence my invitation to examine him. I found him lying with marked retraction of the head, and extreme stiffness of the neck and back muscles; the pulse was low, pupils unequal, respirations deep and there was a very pronounced Kernig's sign. In fact, but that there was some trismus, he was a typical example of cerebro-spinal meningitis, and the question was raised as to whether he could have been a meningitis case from the beginning. On puncture, a turbid fluid was withdrawn full of leuocytes, but sterile on culture, and containing no meningococci visible in a direct smear. The solution to the question raised came later on in the appearance of a short paper in the R. A. M. C. Journal, which described the condition met with in my patient as a frequent sequel of intra-spinal injections of anti-tetanic serum. The meningitis is supposed to be the result of a chemical irritation, and in each case seen by the writer of the article the fluid had been sterile, so that no question of infection during injection arose. One other similar case came under my notice later on, and though I may be wrong in regarding the condition as unusual, it puzzled me so much at the time that I think it worth alluding to.

The next point I wish to refer to is the very satisfactory results we had with a stock pneumococcic vaccine in pneumonia. During April, May and June we had a small

epidemic of a severe type, and high mortality. After exhausting every other method of treatment we determined, in despair, to try vaccine, although my slight previous experience with small doses and my *à priori* reasoning was against their use. We accordingly started with 50 millions pneumococci on the day the diagnosis was made, and whether post or propter immediately began to get better results. We had no further deaths, and we began to get the crisis on the third or fourth day in almost every case. So impressed were the two men in immediate charge of the cases with the change for the better in our returns that they drew up a special memorandum with full reports for publication. These results may have been pure coincidence, and my mind is still open, but I feel bound to report what we found, in case it may be of use to others.

The last fever I will refer to is phlebotomus, or sand-fly fever, of which we had a small epidemic occurring in a unit that had been sent to a holiday camp near Alexandria from a desert station. Most of the men fell sick on the journey up or on the day after reaching Alexandria. The illness is like acute influenza, but is readily recognised by the presence of intense conjunctivitis, which gives the eye the appearance sometimes seen in bloodhounds. Hence the local name of "dog disease" for this fever. Another characteristic is the presence of a marked leucopenia, the W. B. C. rarely exceeding 6,000 in number throughout. The disease is never fatal, and the acute pains which characterise it are readily relieved by a small dose of opium. In many parts of Egypt it was so epidemic as to tax the medical equipment severely, and to seriously deplete for the time being the strength of the units affected.

Outside the subject of fevers, with which alone I have dealt in this paper, many questions of medical interest and importance arose, but I feel that I could better deal with them on another occasion. The problems presented by cardiac affection are at present exciting comment through-

PLATE I.

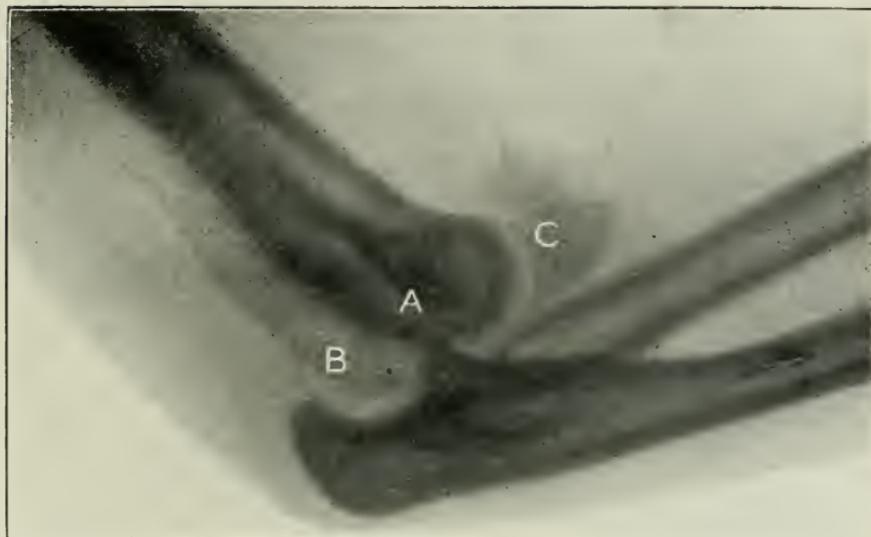


FIG. 1.

- A Top of coronoid process.
- B Mass in olecranon fossa.
- C Bony extension into B. anticus.

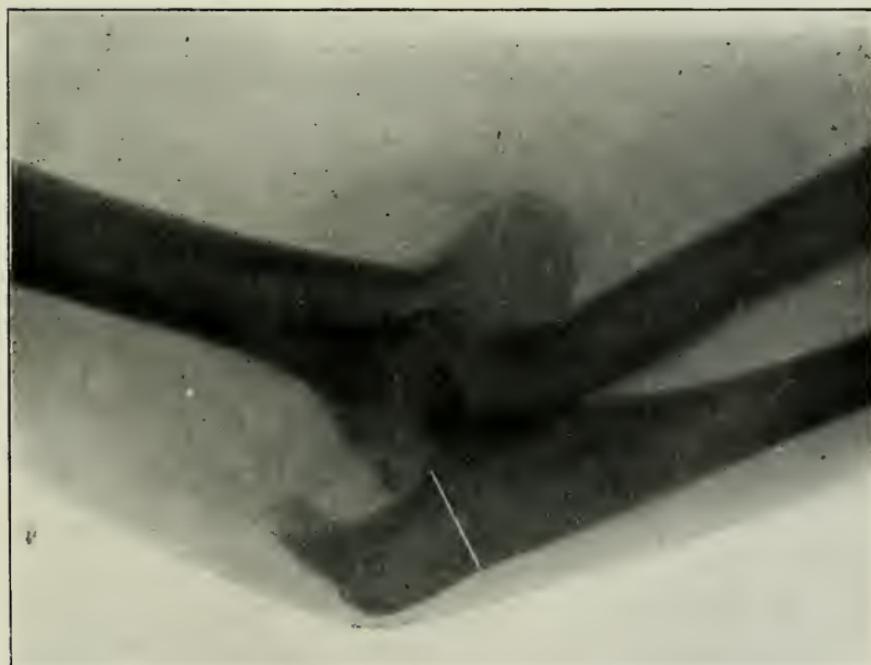


FIG. 2.

out the entire war zone, and were as numerous and important in Egypt as elsewhere. Venereal diseases also presented a special problem, from the point of view of prevention as well as from a therapeutic standpoint; while neuroses, malingering, and various skin diseases were also abundant, and of sufficient importance to warrant special consideration.

ART. II.—*Fractures and Fracture Dislocations.*^a By JOHN S. M'ARDLE, M.Ch. (Hon. *Causâ*) R.U.I., F.R.U.I., F.R.C.S.I.; Professor of Surgery, National University of Ireland; Senior Surgeon, St. Vincent's Hospital; Consulting Surgeon, National Hospital, Holles Street, and Children's Hospital, Temple Street, Dublin. (Illustrated.)

(Continued from Volume CXLIII. March, 1917,
page 160.)

DISLOCATION OF THE ELBOW.

I HAVE always maintained, and I have demonstrated to you, that there is no dislocation of the elbow that cannot be cured by manipulative or operative surgery. The great mistake in those cases which are complicated with fracture is the delay in dealing with them.

When muscles contract and callus forms in profusion, the difficulty of operation is amazing; the results are far from what they would have been had proper treatment been carried out at once.

Let me assure you that nothing will aid you so much in dealing with injuries of joints, and particularly those of the elbow, as a precise knowledge of their anatomy.

Crude surgery is responsible for much misery in cases of lesions of the elbow-joint. I have very many *x-ray* prints showing the sad results of careless treatment.

Irreducibility of elbow dislocation may be due to the intervention of torn capsule or muscle, especially the

^a A Course of Lectures on Clinical Surgery delivered at St. Vincent's Hospital, Dublin.

brachialis anticus; detached bone fragments, especially condyles or coracoid process, or osteophytes may form in the connective tissue, or bone formation may extend along the muscles (*myositis ossificans*). In any event, "arthrotomy" is the only procedure likely to be of any use in cases eight to twelve weeks after injury.

Now, I have avoided the word "resection" as I think it criminal to carry out such an operation where the bones are healthy, no matter how long or how badly displaced. You have seen here case after case of successful arthrotomy; I have never seen or done a completely successful resection—that is, if you mean a limb like to, and serviceable as, the other one. In carrying out an arthrotomy the joint surfaces may be reached by an outer incision over the head of the radius, and an inner one along the inner side of the elbow, through which the ulnar nerve can be hooked out of the way while the sigmoid and olecranon fossæ are cleared, and lateral attachments of the olecranon divided, allowing reduction.

A better operation is that carried out by Kocher. He resects the joint by a fish-hook incision along the outer border of the humerus, downwards, to two inches below the olecranon, where it curves inwards. This incision allows easy separation of the triceps from the extensors and supinators, and free opening of the joint.

The operation, which I have carried out for twenty years (and still advocate) differs entirely from both of the above in that I open the joint through a U-shaped incision, base above, and I get complete exposure of the olecranon and sigmoid fossa by section of the olecranon, as shown at Fig. 2. Subperiosteal detachment of the muscles from both the condyles, removal of loose bone and other *débris* allows of easy reduction. This procedure enables one to carry out a tendoplasty of the triceps, which is often necessary for complete restoration of joint function.

The following case illustrates the method of treatment which I wish to advocate:—

Plate I., Fig. 1, shows an old-standing dislocation

PLATE II.



FIG. 3.

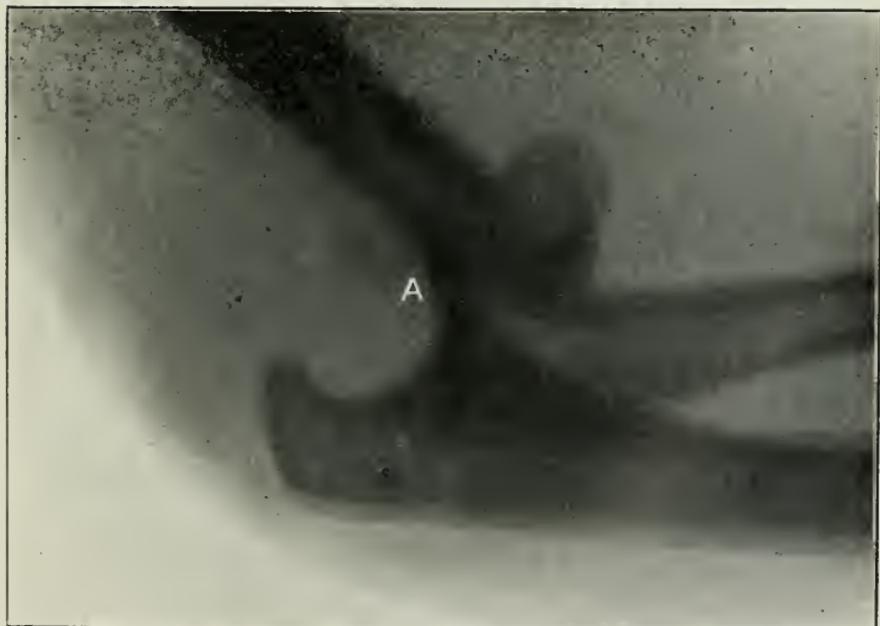


FIG. 4.

in which much periarticular exudation resulted from persistent efforts at reduction. Immediately after the accident (which occurred in the polo field) the limb was put up with the idea that the case was one of fracture of the humerus. Three weeks later it was found that movement in the elbow-joint was very much restricted, and massage was recommended. This was persisted in for some months, but no improvement took place. Movement under ether was now attempted, but without any advantage. All the time the thickening round the joint increased, and as time went on hardening of the periarticular tissues became very marked. The services of London's most advertised bone-setter were now requisitioned. After several months of the so-called manipulative surgery, this gentleman was honest enough to admit the failure of his system, and when you study the condition disclosed by *x*-ray examination you can well understand the impossible task undertaken in this case. Over a year after the accident I had the elbow *x*-rayed for the first time, and found the condition as follows:—The coronoid process of the ulna was fixed just behind the radial head of the humerus, as at A; the olecranon fossa was filled by a fibro-osseous mass, as at B; myositisossificans had occurred in the brachialis anticus, as shown at C, thus locking the joint completely. The swelling at the elbow was fusiform and painless. The arm and forearm being much wasted, no amount of legitimate force had the slightest effect in moving the joint, and so I advised open operation. I raised a U-shaped flap from the back of the elbow, exposing the triceps and the muscular attachments and flexor extensors. The latter I raised from the condyles with the subjacent periosteum, thus getting free access to the lateral aspects of the joint. Next, with a chain saw, I cut through the olecranon at its base, as in Plate I., Fig. 2, turning up the detached piece with the triceps muscle. I now (with a strong gouge and mallet) cleared the olecranon fossa, and removing the ossified portion of the brachialis anticus, I was enabled to perfectly reduce the dislocation,

Tendo-plasty on the triceps enabled me to bring the fragments of the olecranon down into proper position, where I kept it by the stout wire suture, shown in Plate II., Fig. 3. Within two months of operation this patient fished Lough Ennel with great success, and he has now perfect use of his arm.

The next case to which I would call your attention was the outcome of a cycle accident on the way from Wolfhill Colliery to Athy. The patient was thrown forwards on the outer side of the forearm, which was semi-flexed at the time. Being a very heavy man, swelling soon supervened, and I fancy this led to delay in diagnosis. For weeks the limb was supported in the semi-flexed position, and lead and opium lotion applied. As time went on stiffening of the joint occurred, and three months after the accident the *x*-ray shown at Plate II., Fig. 4, was taken.

It will be seen that the head of the radius (which is very large) occupies the olecranon fossa, which, unlike the last case, is empty : thus the case is one of posterior and partial internal dislocation of both bones of the forearm. This case had been subject to the usual routine fixation, without reduction, massage, movement under ether, &c. The *x*-ray proved how futile these attempts were, and when I suggested open operation the patient, who was young and vigorous, consented at once. I carried out the same procedure as in Case 1, with only this difference—that instead of wiring the olecranon, which is tedious, I passed a screw through the fragment of the olecranon to fix it to the shaft of the ulna, as in Plate III., Fig. 5, which shows the great size of the radial head, A ; the gap appearing at the time of bone section B, Fig. 5, due to contracture of the triceps, the lengthening of which I avoided in this case, as it was of fairly recent origin. The result has proved the soundness of my judgment, as you now see the patient with a perfectly sound joint, although there is still much swelling.

When you see a case early adopt one of the following methods of reduction :—

1. With one hand grip the olecranon, with the other

MR. JOHN S. M'ARDLE.—*Fractures and Fracture Dislocations.*

PLATE III.

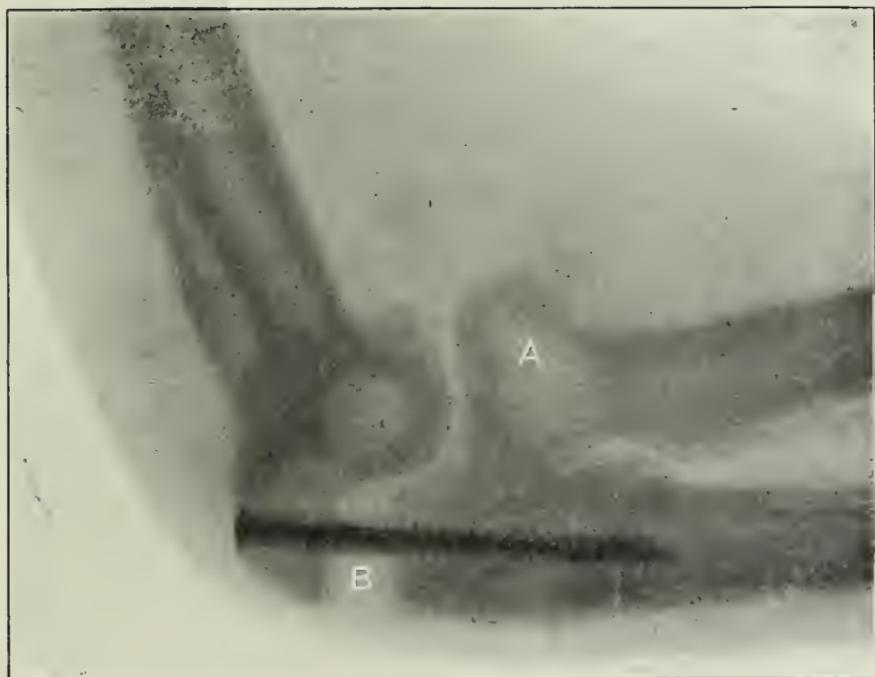


FIG. 5.

make traction on the forearm, so as to dislodge the coronoid process from the olecranon fossa, keeping up extension. Suddenly flex, and the olecranon comes to place in its own fossa.

2. Forceable extension, with limb quite straight, until coronoid is felt to slip over the trochlea.

3. With knee in the bend of the elbow pressing against the radius and ulna; the forearm is flexed with force: the coronoid process freed from the olecranon fossa is drawn into its normal position by the biceps and brachialis anticus.

When some days elapse before deduction an anaesthetic is necessary, and after three to six months' manipulation is of little value. Open operation can then alone avail.

ART. III.—*Tuberculosis on Virgin Soil.* By HAROLD T. MARRABLE, M.D., B.A., Univ. Dubl.; Ispahan, Persia.

IT has fallen to the lot of the writer to witness the spread of tuberculosis over fresh ground, and the following notes may prove of interest to those who live in a country where the disease has existed for centuries among people who are exposed in a greater or less degree to infection throughout their lives.

Up to the year 1900 pulmonary tuberculosis was unknown in Central Persia, a plateau varying from 4,000 to 6,000 feet.

It undoubtedly existed previous to that date in the extreme north of Persia, along the shores of the Caspian Sea, but had hitherto not invaded the highlands.

About the year 1900 it appeared among the Armenians of Julfa, a village two miles from Ispahan, being introduced into that community by an Armenian merchant who had lived in India. Two years later it appeared among the Mohammedans in the town of Ispahan. Between the years 1900 and 1908 over 100 cases were seen and treated by the staff of the Church Missionary Society's Hospital in Ispahan. Some of the cases were treated at our dis-

pensaries, others were admitted into hospital. The out-patient treatment was admittedly unsatisfactory, but those who consented to go into hospital received sanatorium treatment—rest, abundant diet, and open-air, day and night.

Two facts stand out with regard to these cases. First, the rapidity of the disease: rarely did it last more than six months; never more than one year. Secondly, the mortality: all died.

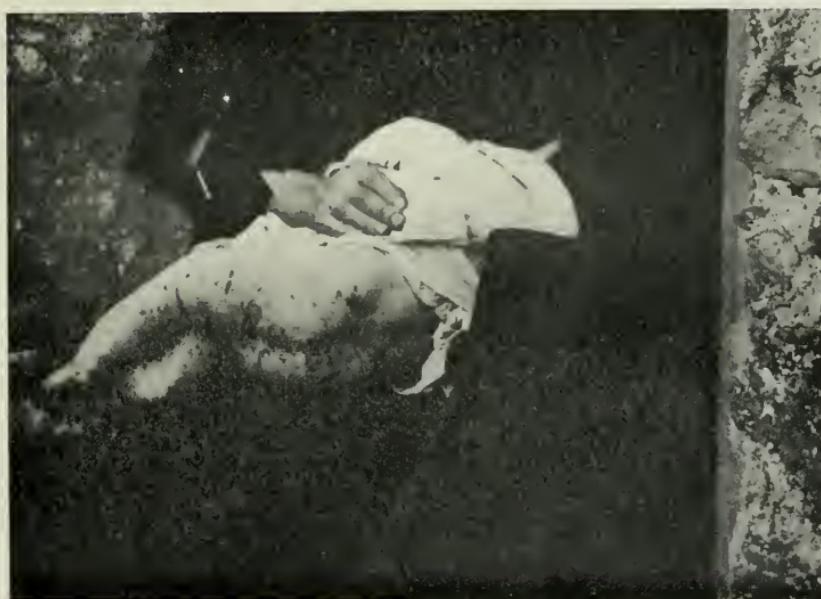
That those who were treated in their own homes or at the out-patient dispensaries should succumb to the disease is not so remarkable, considering the mode of living of the native, who, during the cold months, not only seals up every aperture in his sleeping room, but sleeps together with the other members of the family under a padded cotton quilt, his head under the quilt, any oxygen in the room being early consumed by a pan of charcoal, which is kept burning during the night. But one would have expected better results from hygienic treatment in hospital. I think the explanation must be sought for in the fact that immunity, either hereditary or acquired, is absent in the native, consequently he falls a ready victim the first time he is exposed to infection. This is not, of course, peculiar to phthisis. As is well known, when measles was first introduced amongst the South Sea islanders, a considerable proportion of the population died.

In the year 1908 treatment with tuberculin was commenced. It should be stated that the cases mentioned by the writer refer only to those in which the tubercle bacillus has been found in the sputum.

Up to the end of 1914 close on 500 patients had been treated by this method. The average time occupied by the treatment was six months. The preparations used were tuberculin bouillon filtrate bovine (P. T. O.), old tuberculin bovine (P. T.) and old tuberculin human (T.). The first dose administered was rarely larger than .0001 c.c., P. T. O., and this was increased until the patient was able to tolerate 1 c.c., T. The treatment was

DR. DENIS HENNESSY.—*Cerebro-Spinal Spotted Fever.*

PLATE IV.



then stopped; test injections of .5 c.c. and 1 c.c. T. being given once every three months for the first year, and once every six months for the next two years. If at the end of three years no reaction had taken place, the case was considered cured; if reactions occurred, a second and sometimes a third shortened course of treatment was given.

Unfortunately, accurate statistics are impossible; for an appreciable number of the natives having benefited very considerably in health during the first two or three months of the treatment, could not be convinced of the necessity of submitting to a complete course of injections, and returned to their homes; others, on completion of the treatment, disappeared, and were not seen again. The fact remains that 40 per cent. were alive and well three years after the last reaction to a large dose of tuberculin.

In 20 per cent. of the cases the treatment was found unsuitable, and discontinued; the remainder of the cases were lost sight of, and therefore unavailable for statistical purposes. When it is remembered that the previous method of treatment had proved a complete failure, and that in consequence tuberculin was tried in cases which could not be considered favourable, such as mixed infection, it must be admitted that the results are encouraging. Unfortunately, we are quite unable to keep pace with the disease. Three Mission Hospitals, with a maximal staff of five men and four women doctors, are alone available for Central and Southern Persia, an area four times that of Great Britain.

Phthisis has now appeared among the Gashquois, a powerful tribe in Southern Persia, and is spreading at an alarming rate. We have had reluctantly to turn a deaf ear to their constant appeals for help.

ART. IV.—*Cerebro-Spinal Spotted Fever.* By DENIS HENNESSY, L.R.C.P. & S. Edin.; L.R.F.P.S. Glas.; Medical Officer, Bandon Dispensary, Co. Cork.

THE illustration presents a photo of a child, aged 10 months, showing on the thighs and buttocks several large purpuric

spots which occurred in a case of cerebro-spinal or spotted fever. I was called to see this case on April 22nd, 1917. On that morning the mother got alarmed on seeing her child covered over with black spots. I found the child very ill ; temperature 102° F., pulse 110 ; had an attack of diarrhoea, going on for two or three days previously ; there were 10 nervous symptoms, either motor or sensory. There was nothing to suggest what the illness might be, except the purpuric spots—patches, irregular in shape, largest on the buttocks, but distributed all over the body ; a few on the face and scalp, skin not raised, and no paling on pressure.

The following day, April 23rd, I noticed slight opisthotonos, and Kernig's sign was present. I performed lumbar puncture, and drew off about $\frac{1}{2}$ oz. of turbulent fluid, also had throat swabbed. I forwarded fluid and swabs to Professor Moore, University College, Cork, for examination, who discovered in the fluid numerous meningococci ; swabs proved negative. The child had four injections of serum, one intraspinal, and three hypodermically. It died on the eighth day from the date of my first visit. I may add that there were no convulsions at any time.

In this disease the mortality amongst children is stated as being much higher than in adults. At Purdysburn Infectious Diseases Hospital, Belfast, of 74 children under 5 years of age treated for cerebro-spinal fever, 61 died (see "Practitioner," June, 1915, page 849).

On the diagnosis being confirmed in this case I had the family—viz., father, mother, and three children—isolated in Bandon Fever Hospital, and swabs from their throats sent for bacteriological examination. Meningococci were found in one case, a little girl of 8 years ; the others proved negative. So far, there has been no other case in the family, neither has any case occurred in the neighbourhood. I have been unable to trace any source of infection.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The New System of Gynaecology. Edited by THOMAS WATTS EDEN, M.D., F.R.C.S.E., F.R.C.P., &c., Obstetric Physician, Charing Cross Hospital, &c. ; and CUTHBERT LOCKYER, M.D., B.S., F.R.C.S., F.R.C.P., &c., Obstetric Physician to Out-Patients, Charing Cross Hospital, &c. In three Volumes, with numerous illustrations in colour and in black and white. London : Macmillan & Co., Ltd. 1917. Large Cr. 8vo. Vol. I., pp. 761 + xv. Vol. II., pp. 875 + vii. Vol. III., pp. 871 + viii.

THERE are 51 articles in the work before us. All of these are by British authors, with the exception of five. Although the latter are excellent, it would have been gratifying if all had been written by British authors and if the title had been "The British System of Gynaecology." It is difficult to know to what extent of the reading public this "System" will appeal. We consider after a careful review that no gynaecologist should be without it, and we hope there are a sufficient number of gynaecologists with six guineas to spare, so that the immense work which has been brought to a successful issue by the Editors will be rewarded. In the space at our disposal, it is impossible to review each article separately, so that anything we say will merely touch on the fringe of the good things contained in the various writings.

The author of "Methods of Examination" has a pet subject, and we have read with relish his investigations,

published in various journals. When he deals with the examination of discharges (uterine and otherwise) he is in his element. But there are small points which might have been better noted. For example, more stress might have been laid on inspection of the extern genitals. The examination on the Schroeder's chair is not insisted on. In figure 77 the examiner is wearing gloves ; in figure 78 he is not.

Blair Bell, in a monograph of 130 pages, has treated " Disorders of Function " in a masterly manner. He divides his subject into two main parts—viz., (1) derangements of the menstrual function and sex characteristics, and (2) derangements of the sexual functions and of conception. He has introduced such unusual words as metrostaxis and epimenorrhœa, and we sincerely hope that their introduction will not be generally adopted. He describes an operation for the cure of acute anteflexion by anterior hysterotomy, which does not recommend itself to us.

" Streptothrix infections including actinomycosis of the pelvis and pelvic viscera " will appeal to our foreign brethren.

The subject of chronic endometritis is likely to be one of the most contentious topics of the near future. Watson agrees with Hitschmann and Adler and others, who " hold that the only true endometritis is that of the interstitial type : that so-called glandular endometritis does not exist, but that most of the appearances hitherto described as such are merely physiological changes in the glands occurring in the normal menstrual cycle ; and that when glandular hyperplasia is definitely present it is more of the nature of a new growth than of inflammation." Also, that " the only definite evidence of inflammation is the presence of accumulations of round cells and the occurrence of plasma cells." With the above statements before us, we feel bound to inquire if we are all to put aside our old ideas, but we read later that " as opinion is not yet unanimous regarding the aetiological relationship between in-

flammation and glandular hypertrophy and hyperplasia, it has been thought right to discuss the latter in the present article." Glandular hyperplasia and hypertrophy, it is thought, are sometimes associated with a definite inflammatory lesion, but they are not caused by it. The author does not approve generally of curettage as a treatment in chronic endometritis, and finds that the condition sometimes becomes worse after the operation, but he believes that "curettage also may relieve symptoms by depleting the uterus and giving a fresh start to retarded involution after abortion or child-birth. Clinically, there can be no doubt that an enlarged heavy uterus tends in many cases to diminish in size after the operation."

Tweedy, giving a startling list of the immediate and remote effects of cervical laceration, makes us wonder if in the future obstetricians will perform immediate suture of all tears after labour.

Nearly 200 pages are devoted to "Myomata and Adenomyomata." The gynæcologist who does not possess the standard works on these subjects should not miss a line of these articles, so ably contributed by one of the Editors.

Wilson, in his paper on carcinoma of the uterus, argues that the term squamous epithelioma should be dropped and its place taken by the term solid alveolar carcinoma of the cervix—possibly with a qualifying adjective, according to the kind and amount of degeneration shown. We are not in agreement with his conclusions. There were only 136 operable cases in his series of 529 cases: he says that the diagnosis of operability varies with the individual surgeon, but, "generally speaking, radical removal of the disease may be undertaken when there appears to be a reasonable chance of making the necessary incisions outside the limits of the new growth." A Wertheim operation is the one of choice for cervical carcinoma, but such a radical measure is not advised for the corporeal variety.

The chapter on chorion-epithelioma is by Professor Teacher, and is beyond criticism.

We regret that the subject of backward displacements has not been treated differently. While we agree that many backward displacements are "normal," too much stress has been laid on this point, and certainly retroversions are more frequently abnormal than normal.

We quote the table of appropriate operations for different forms of prolapse. Type I.—Cystocele : (a) Anterior colporrhaphy ; (c) perinaeorrhaphy. Type II.—Classical prolapse : (a) Anterior colporrhaphy, with extension of the incision backwards into the lateral vaginal fornices—i.e., with excision of the anterior fornix ; (b) perinaeorrhaphy, classical prolapse, with long or unhealthy cervix. (a) Anterior colporrhaphy, with excision of the anterior fornix and amputation of the cervix by one incision ; (b) perinaeorrhaphy. Type III.—Inversion of the vagina from above downwards : (a) Amputation of the cervix with incision of the anterior fornix by one incision ; (b) perinaeorrhaphy. Type IV.—Rectocele : colpo-perinaeorrhaphy. We are greatly surprised that the author has no use for such modern operations as shortening of the utero-sacral ligaments and interposition of the uterus.

All the gynaecological operations are well described. "Technique" is admirable, but "10 minutes scrubbing with soap and water" will remove a goodly amount of epidermis if repeated often in the day. The chapter on hysterectomy is specially worthy of mention, and the bibliography is useful.

Diseases of the breast, of the appendix, and of other conditions allied to gynaecology are discussed. Infections of the urinary tract together with the use of the cystoscope will be intelligible and useful to the gynaecologist who dabbles in cystoscopy.

Macmillan and Co. have published these tomes, and they have done their work well. Printed clearly on good paper, strongly bound, profusely illustrated, the publication of the "New System of Gynaecology" is a landmark in the history of the subject.

B. S.

RECENT WORKS ON TUBERCULOSIS.

1. *Pulmonary Tuberculosis. Its Diagnosis, Prevention and Treatment.* By W. M. CROFTON, M.D., Lecturer in Special Pathology, University College, Dublin; Visiting Physician, Royal National Hospital for Consumption in Ireland; Pathologist to Dr. Steevens' Hospital; late Temp. Capt., R.A.M.C. London: J. & A. Churchill. 1917. Cr. 8vo. Pp. vi + 122.

2. *Pneumothorax Treatment of Pulmonary Tuberculosis.* By CLIVE RIVIERE, M.D. Lond. ; F.R.C.P., Physician, City of London Hospital for Diseases of the Chest, Victoria Park, E. ; Physician, East London Hospital for Children, Shadwell, E. London: Henry Frowde; Hodder & Stoughton. 1917. F'cap 8vo. Pp. 127.

1. THE only word we can apply to this little book is "scrappy;" the author, indeed, tells us in his preface that he only intends to present a sketch of the subject, but the title which he has selected makes one expect a much larger volume; actually, the book contains only 120 pages of fairly large print.

We think the writer made a mistake in not confining himself entirely to the subject of prophylaxis and treatment. On both these aspects he holds independent views, which he had previously defended and expounded in various articles and papers, and we think the present book might have afforded him an opportunity of explaining his particular methods of treatment, and the results he has obtained at greater length.

The chapters dealing with diagnosis remind us of an elementary text-book, and contain, as far as we can see, nothing new and nothing that has not been said better in a dozen other books. On the other hand, the chapter on prophylaxis is interesting, and the suggestion that all

children with a tubercular family history should be treated by prophylactic doses of tuberculin is certainly worthy of consideration. In treatment the writer relies largely on injections of iodoform, or other iodine containing substances, intravenously; but in addition he uses tuberculin prepared by a special process, and vaccines made from the other organisms found in tubercular sputum.

We cannot honestly say that the writer's arguments conveyed much conviction to our minds, but it is well that his methods should become known to the profession at large in order that they may be subjected to an independent trial. Any attempt to treat and cure tuberculosis is to be welcomed.

2. WE think that the profession is under a debt of gratitude to the author of this little book. He has gathered together the literature dealing with his subject and his own experience in a handy and readable volume. Before the appearance of this book anyone attempting to treat tuberculosis by the pneumothorax method was compelled to consult a series of scattered papers, and often found the most divergent opinions regarding the indications and contra-indications as well as the best methods to employ in carrying out the treatment. In the present volume practically every question is considered and dealt with thoroughly. A very careful chapter is devoted to the selection of suitable cases, the technique of the initial operation is fully described, and also the question of refills. Complications are also dealt with, though we found no reference to one unpleasant complication that we personally encountered—namely, persistent hiccup following the treatment. The author is most enthusiastic as to the efficacy of this special method, but at the same time shows a well-balanced judgment in assigning it its proper place as a therapeutic means. Any person who is concerned in the treatment of tuberculosis, or who is called upon to advise patients as to what treatment to seek, should not fail to procure this book and read it.

Anæsthetics: A Practical Handbook. By J. BLOMFIELD, M.D., Cantab.; Senior Anæsthetist and Lecturer on Anæsthetics at St. George's Hospital, &c. Fourth Edition. London: Baillière, Tindall & Cox. 1917. Crown 8vo. Pp. viii + 147.

WITHIN a comparatively short time Dr. Blomfield's handbook has reached a fourth edition. The book has fully met the conditions the author imposed on himself of supplying students and practitioners "not specially versed in anæsthetics" with an intelligible and brief description of the method of administration by the simple methods of our more commonly used agents—chloroform, ether, nitrous oxide, ethyl chloride, and local analgesics. All this is admirable writing, necessarily condensed, but withal clear and terse, and for this, the much larger portion of the book, we have nothing but praise. We cannot say the same for the twelfth and thirteenth chapters. Spinal anæsthesia is too big a subject to be even outlined in a few pages, yet we think that in the space allotted the risks incidental to such a procedure might have been more fully dealt with.

"Anæsthetics in Military Practice" is condensed so far as to attain the tablet form, a method of administration unsuited, in our opinion, for instruction in dietetics or therapeutics. We may just add that the figures in the text are both well drawn and helpful.

Elements of Hygiene and Public Health. A Text-book for Students and Practitioners of Medicine. By CHARLES PORTER, M.D. London: Henry Frowde, Hodder & Stoughton. 1917. 98 Illustrations. Cr. 8vo. Pp. xiv + 411.

THIS carefully compiled and reliable handbook has the great advantage of being new, and so more readable than an old treatise brought up-to-date usually is. The arrangement presents several novelties, and many of the illustra-

tions are new, appearing for the first time, an unusual feature in public health handbooks. There are, of course, many omissions—for instance, *calories* are not mentioned, and yet they are important in estimating the relative values of foods. Taking into consideration, however, the large number of subjects to be dealt with, and the comparatively small space at his disposal, the author has done his work well, and students and medical men will find this a reliable text-book, convenient for reference.

Notes on Military Orthopædics. By COLONEL ROBERT JONES, C.B.; Inspector of Military Orthopædics, A.M.S.; with an Introductory Note by SURGEON-GENERAL SIR ALFRED KEOUGH, G.C.B., Director-General, A.M.S. Illustrated. Cassell & Co., Ltd. 1917. Pp. ix + 132.

THE author, whom we most heartily congratulate upon the honour of knighthood which His Majesty has recently conferred upon him, and which has been most worthily deserved, tells us in the preface that this work is published in the hope that it may, perhaps, be of some service to surgeons engaged in military work. In our opinion, the “perhaps” is quite superfluous. The book is, and will be, of immense service to surgeons engaged in military work—and what surgeons are not so engaged at present?

The profession is deeply indebted to Colonel Sir Robert Jones for all the fine work he has done in connection with orthopædic surgery generally, and more particularly for the magnificent work he has done in connection with the deformities and disabilities produced amongst our soldiers in the present war.

Following the introduction by Sir Alfred Keogh, G.C.B., there are seven short sections or chapters, all nicely illustrated. They are—

I. Position of Election for Ankylosis following Gun-shot Injuries of Joints.

II. Suture of Nerves and Alternative Methods of Treatment by Transplantation of Tendon.

III. The Soldier's Foot and the Treatment of Common Deformities of the Foot.

IV. Malunited and Ununited Fractures.

V. Transplantation of Bone and some Uses of the Bone-graft.

VI. Disabilities of the Knee-joint.

VII. The Mechanical Treatment of Fractures under War Conditions.

The book is full of sound, practical advice given as the result of an unrivalled experience on the part of its distinguished author, and we strongly recommend its careful study to every surgeon and to every student of surgery. It will repay him and his patients a hundredfold for his trouble; indeed we may say for the pleasure—for it is a rare pleasure to read what Sir Robert Jones has written.

La Chirurgia degli Organi di Movimento. Editor: DR.

V. PUTTI, Professor Extraordinary of Orthopaedics in the Royal University of Bologna; Director of the Institute of Orthopaedics, Rizzoli. Volume I., No. 1. March, 1917. Bologna: L. Cappelli, Publisher.

No person is better qualified to make a magazine on the subject of orthopaedics a success than Dr. V. Putti, who, though still a young man, is properly looked on as an authority on all operations that have for their object orthopaedic progress. His originality, boldness and skill recall the work of his great predecessor in the University of Bologna, Gasparo Tagliacozzi, whose "De curtorum chirurgiâ per insitionem," published two years prior to his death, conferred honour on Italian surgery, though it brought on him the enmity of the Brancas, the adverse criticism of both Paré and Fallopius, and the immortality of a place in Hudibras. Times are changed since 1590, when Aldo Manuzio published the work which the Church condemned as suggesting an operation designed to meddle with the handiwork of God.

To-day Dr. V. Putti's surgery is issued with all good wishes for success which its merits deserve from Bologna in a form and a beauty of typography and illustration which would do credit to the Aldine Press. The 160 pages of the magazine are printed in such large, clear, unsmudged type, and are so beautifully illustrated, that the reader cannot but be charmed to find the great thoughts of this master of plastic surgery so fittingly enshrined.

The volume is dedicated to the memory of his dear friend, Alessandro Codivilla, on the fifth anniversary of his death.

Two-thirds of the whole number are taken up with the subject of ankylosis of the knee-joint. Dr. V. Putti commences with a notice of the interest taken in the subject at the International Medical Congress at London, 1913, and on the discussions to which the pathological conditions gave rise at Paris in October of the same year. In these latter Ollier's brilliant successes in treating such conditions of the elbow-joint were appreciably noticed. It was a revelation to learn how successfully large subperiosteal amputations of sections of bone could be performed; the hip-joint even came within the province of his knife. Whilst some at the Paris meeting advocated the total removal of the affected bone, others advocated a more conservative operation. But all were agreed on the necessity of preserving the whole capsule, its ligaments and tissues, injury to which would incur great and unnecessary injury, and whilst it might secure mobility, would create a functionally useless joint. The creation of a joint should, the author suggests, follow the lines which we see produce false joints in cases of ununited fractures. And he impresses the fact that the formation of the artificial inability is on very similar lines to that consequent to an unreduced laxation—the histological and morphological alteration being alike. This theory is not quite on the lines of that of Ollier of Lyons, who favoured the hypothesis that effused products played a more important part as genetic agents in the formation of the new articulation. That the formation of mucous bursæ plays an im-

portant part in all such changes is common knowledge, and its formation is, the author considers, essential. He in common with Kaufmann and Murphy, accepts Payr's theory: "Hygromata are the combined product of liquefaction of hypertrophied connective tissue. In the development of artificial joints, it is the utilisation of this transformation of fat and connective tissue into hygromata that gives us sliding endothelial surfaces which so closely resemble joints." Ollier was also of opinion that the initiative to movement in the neo-articulations had its source in mucous bursæ; he considered this to have been demonstrated by his experiments on dogs. This received confirmation by Payr's experiments also on dogs, which were conducted with great care. The writing of Verneuil, one of the earliest to speculate on the mobilisation of ankylosed joints, is recorded, as are those of Hoffmann, Baumgarten and Denuce, and special emphasis is laid on the writings of Dolitala, Serra and Sumita, the last of whom put forward views on the histological modification of cartilage which was adumbrated by Prof. Redfern, of Belfast, whilst lecturing to the anatomical classes of the Aberdeen Medical School. The modern researches were, however, so satisfactory to Dr. Putti that he writes: "I can, therefore, conclude that in the human being a segment of fascia lata transplanted on to the fresh surface of the femur, on excision of the condyles, then in an unhealthy condition, and surrounded by unhealthy conditions, examined three years after transplantation, showed when examined in its thickest part a change in the tissue which made it resemble what it was designed to supply, that the newly-formed structure should resemble that of the healthy limb."

In the year 1913 he reported 23 cases of mobilisation of joints as follows:—Temporo-maxillary, 3; elbow, 12; hip, 3; knee, 3; ankle, 1; phalangeal, 1.

In the year 1916 he operated on the temporo-maxillary 3 times, on the elbow 11 times, on the hip 3 times, on the knee 7 times, and on the ankle once. He then considers the

indications which call for operation on the knee-joint, and gives summaries of cases, the reports of which he had published in the "Archivio di Ortopedist." He adds much to the value of the letterpress by the many exquisitely beautiful and accurate illustrations which recall the wonderful steel etchings of John Bell with which he adorned the first edition of his "Anatomy;" or Gilbert Breschet's marvellous lithographs of the rachidian veins. The technique of the operation is illustrated by seven pictures, drawn from life, and the post-operative apparatus used to ensure free movement is also freely illustrated. We cannot, however, go through the different operations suggested, or the post-operative care of the patient, much as we would wish to bring the author's wealth of information before our readers. What we have written tells how much we appreciate Dr. Putti's labours, and how highly we value his contribution to practical surgery in a province of which the services in the near future will be of inestimable benefit to the many, many brave wounded men who have sacrificed their all for common humanity.

The Ruxmani Hindu Lying-in Hospital, Bombay. Sixth Annual Clinical Report, 1915-1916. By DR. M. V. MEHTA, M.R.C.P.I.; Physician-in-Charge. Bombay: "Sanj Vartaman" Press. 1917. Pp. 38.

THE Ruxmani Hospital is evidently filling a necessary gap. The number of confinements in the hospital since its inception is as follows:—1911, 66; 1912, 177; 1913, 260; 1914, 354; 1915, 380; 1916, 486. This steady increase is a sure sign of a well-conducted institution. The Report is most comprehensive, and is based on the principle of the annual reports of the Rotunda Hospital, where Dr. Mehta, who is the medical officer of the Ruxmani Hospital, studied for many months, and of which he is a Licentiate in Midwifery.

We are glad to note that the Indian women, including the high caste Gujrati, have overcome their time-honoured prejudice against confinement in a hospital.

Surgical Contributions from 1881 to 1916. By RUTHERFORD MORRISON, M.B., F.R.C.S. Edin.; F.R.C.S. Engl.; Consulting Surgeon, Royal Victoria Infirmary, Newcastle-on-Tyne; Professor of Surgery, Durham University; Examiner in Surgery, Liverpool University. Volume I.—General Surgery. Pp. xiv + 425. Volume II.—Abdominal Surgery. Pp. xiii + 953. Bristol: John Wright & Sons, Ltd.

THESE two volumes contain almost if not indeed all the papers published by Mr. Rutherford Morrison during the practice of his profession for thirty-five years.

They contain papers upon all sorts of subjects, and are arranged very nicely for reference. They well show the evolution of surgery in the hands of one man, and this adds immensely to their value. Not only do they show the evolution of surgery through the antiseptic and aseptic periods, but they show the evolution in the light of pathology, both morbid and living.

We congratulate the editor upon the success of his labours, and we feel convinced the profession will feel grateful to him for placing in a permanent and accessible form the work of Mr. Rutherford Morrison.

Acute Appendicitis. Practical Points from a Twenty-Five Years' Experience. By G. HAMILTON WHITEFORD, M.R.C.S., L.R.C.P.; late Specialist in Surgery, Military Hospital, Devonport; Author of "Anæsthetics in Surgery," "Glimpses of American Surgery in 1906," and "An Operating Theatre in Private Practice." London: Harrison & Sons, 45 Pall Mall, S.W. 1917. Pp. 72.

THE author tells us that he has endeavoured to embody the practical points in diagnosis and treatment as they have presented themselves to him during a quarter of a century.

There is absolutely no doubt whatever about the practical value of this little book. That can be seen in every page of it. It is full of sound, practical good sense and judgment, and we can strongly commend its study to every junior surgeon or student of surgery.

PART III. MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence

A MEDICAL MAN'S PEEP INTO ANTE-BELLUM RUSSIA.

By JOHN KNOTT, A.M., M.D., Ch.B. & D.P.H. (Univ. Dub.) ;
F.R.C.S.I. ; M.R.C.P.I. ; M.R.I.A., &c.

“THE proper study of mankind is MAN.” The statement is “somewhat musty,” indeed ; but this feature can hardly be held as a disqualification for the motto of a discursive thesis of which the subject is one of the most peculiarly fascinating of these peculiarly strenuous times. The remoteness of the vast Tsardom has surely been never realised by a West-European who has not enjoyed the opportunity of collecting first-hand evidence of the more distinctive characteristics of the great Slav race, and the physical features of the dreamily limitless plain on which this peculiarly polishable people have placed their diminutive wooden domiciles. This land of vast distances and tyrannical climate presents, to even the most advanced—and the most speculative—of modern scientists, as well as of modern politicians, many of the most important problems that still await the final solution which is assuredly foredoomed to a lengthy postponement. But there is copious material for instruction in the observation and collection of the available facts ; while in the practice of skilled speculation we can help to fructify a soil of which the productiveness must continue to constitute one of the most important assets of progressive humanity, while keeping the sedimentary motes and corroding rust wiped off from our own intellectual armour and the weapons on which we are obliged to rely in the defence of our opinions, and views of life and its problems. How few people

in these islands thought, a decade ago, of an approaching intimacy with the manhood of mysterious Russia ; and how much fewer still dreamed of the possibility of a rapidly successful revolution such as that which has just transmuted the autocracy of the land of the Romanoffs into a democracy planned and arranged according to the most advanced of Western programmes. The strenuous conditions of present European existence have made the average man in the street familiar with the geographical contour of the vast territory that *was* the Empire of Russia—at least on its western aspect. But I hardly think that they have made that very punctual reader of the morning paper at all more intimate with the psychology, or daily pursuits or ambitions, of the average Slav ; or of the collective mass which has been so curiously “ rounded up ” and “ roped in ” during the unique process of evolution of that truly weird despotism.

Like a good many other emotional Celts whom I have occasionally met with, I had my boyish dream of some day standing on the spot from which Napoleon watched the burning of Moscow : that “ ocean of fire ” to which he used to refer in St. Helena as the grandest scene that he had witnessed in the whole course of his extraordinary career. Recent years and psychological investigations made me even still more curious to see the Easter ceremonies in the capital of the Eastern “ orthodox ” section of Christendom—the nucleus of which found its first resting-place at Kieff after expulsion from Constantinople by the conquering Turks ; and subsequently settled in Moscow, as the central stronghold of the Slav race which formed the great bulk of its adherents. Our own much-quoted Lord Chancellor Bacon recognised the politico-psychological fact that : “ *Religion* being the chief Band of humane Society, it is a happy thing, when it selfe, is well Contained, within the true band of *Unity*.” In the case of the emotional Slav, this characteristic of human nature has been peculiarly appealed to and worked upon. We may here recall the fact that Bacon was a contemporary of Ivan the Terrible, the founder of the Tsardom (who used to be sometimes referred to as a possible candidate for the hand of our own “ Virgin ” Queen) ; and that there was then more confraternal communication between the very limited numbers of the great

and the learned than in our own time : with all its facilities for rapid travel by steam and petrol, and instantaneous communication by voltaic currents and hertzian waves ; with its tireless spasmodic striving towards equality of intellectual attainment as well as of voting power ! (But it required a personal inspection to enable the alien outsider to realise that the Tsar depended on the 'Εικὼν, on the symbol of Divine Power, for his prestige ; while he was governed by the bureaucracy, which was governed in its turn by the majestically graceful and dignified 'Εταιρα.)

To "concrete our ideas" with some nuclear facts of experience : The transit from Dublin to Moscow represented almost exactly six days of travel. The present woefully thrilling conditions of the North Sea and the Baltic can hardly fail to make a comparatively recent traveller shudder at the contemplation of the established contrast, while it gives reason to the gratified explorer for self-congratulation on the fortunate achievement of one of the special objects of a life-long curiosity. The enthusiastic pursuit of the sea-gulls along the whole breadth of the "German Ocean" bore convincing testimony to their appreciation of the after-meal scraps, the super-aqueous distribution of which they seemed to be able to time as accurately as the passengers themselves. The weather conditions were absolutely perfect. The genial and sociable Finnish purser, whose radiant intelligence was paralleled only by his almost morbid hatred of his Russian rulers—their persons and their ways, assured me that it was the best passage he had known during an experience of many years. Then the Baltic transit presented so marked a skyward contrast to that of the neighbouring ocean territory. The sunsets of that intrusive arm of venerable Father Ocean will ever rank in my memory with the most weird sights of my personal experience. They all varied, and were all equally impressive ; a short series of them—especially in the Gulf of Finland—will suffice, for the observant, to illustrate the nature and source of the inspiration of the whole Scandinavian mythology !—while they also present a peculiarly pregnant example of the influence of environment on man's psychological and emotional conditions and evolution, both individually and collectively.

Although the Neva had been laid open, by the unusually

mild April weather, some weeks before the regulation time, the ordinary rule of practice was followed, and we disembarked at Abo, the homely ex-capital of Finland. The maritime fringe of the Finnish coast forms, as summer approaches, an exquisitely ideal dream of gorgeous scenic beauty. No wonder that the Finlander loves his country with a filial love of the most intense! A million or so of exquisitely beautiful islets dot the watery surface all over (if there is any slight exaggeration of the actual number I commit myself without reserve to the indulgence of the reader!); each representing a granite bubble which boiled up when the future Finland was passing through the vigorously seething stage of its preliminary fluid evolution, and was there and then jellified (? by a sudden breeze transmitted over the surface of a northern glacier) for the æsthetic delight of the posterity which has appreciated it so well, and decorated it so exquisitely and appropriately. The railroad run was uneventful to St. Petersburg (here the *ominous* change of name is recalled—one of the curious coincident “reforms” of which the approach of historic cataclysms furnishes so many examples). We just saw a specimen slice of the slender larch and pine forests of “the land of a thousand lakes.” (I cannot refrain from mentioning the word “million” here once more: it felt so much more truly representative, on the spot; and my kind Finnish purser had told me that on one pleasant holiday he selected a specially suitable spot from which to fling his baited lines, and fished *simultaneously in five lakes!*) The continuous alternation of land and water, and the sharp contrast of summer and winter, emphasise all the other æsthetic attractions of this interesting country. How vividly did a general glance at the surface of this vast bed of abruptly jellified boiling granite recall to the mind of one imaginative visitor the appearance of the vast family wash-pot in which the maid-of-all-work carried out the first stage of her periodic clarification of the household bed-and-table linen—with its alternations of bulging folds of expanding textile material, and more mobile watery bubbles—both inflated by the gas dislodged from the dissolved sodium carbonate, and margined by patches of standard aqueous level! A peculiarly interesting country is that now occupied by this super-intelligent Mongol tribe, which has attained a very fore-

most position in the world's march of intellect—and in which the almost startling success of universal suffrage has demonstrated the gratifying conditions derivable from the *granting* of the *vote* by the liberally progressive METRIARCH to her inferior male partner, that yielded results so splendidly successful—in a community in which till a little more than a century ago, the household was absolutely governed by the polyandrous female, through whom, *only*, hereditary descent was traced; and in which surnames were unknown, for the unanswerable reason that she was seldom sure who was the actual father!

St. Petersburg was rather hastily inspected. This truly wonderful achievement of the truly wonderful Peter the Great presented, as it must always have done, an aspect suggestive of having been built as a politico-soeial speculation; and that the full supply of tenants for its vast congeries of houses and chambers had not even yet been completely rounded up. The unspeakable cannon-ball pavement of the wide and rather lonely-looking streets of the metropolis of Tsardom is another feature which at once strikes the visitor's eye—and his nether extremities, especially if furnished with eorns (or rheumatics). The highly educational pieture-house has familiarised the world with the general features of the droshky and its driver. But it cannot so successfully reproduce the aesthetics and harmonies in which he wrangles for his excess of fare. Or his diplomatic organisation—in this land of despotism unrestrained! I learned in Moscow that the universal complaints against the finaneial methods of that very necessary public functionary had once induced the governing Corporation of the commercial metropolis of Russia to draw up a definite tariff, of which the contents were duly promulgated on the appointed ensuing day, by proclamation *per* poster and journal. And it was nearing winter. Next day, not a droshky or droshky-driver was visible throughout the whole length and breadth of Moscow! They had vanished—as would rats into their holes! And, after a short interval of physical and soeial martyrdom, the millionaires of Moseow approached—in a body—the makers of that law, with a view to its sudden repeal. They were successful, of course; and the millionaire and the legislator of Moseow thenceforward left the droshky tariff question severely alone.

A fair example surely of what organisation can effect—even under conditions of cast-iron despotism !

But the one outstanding feature which impresses the student of psychology and ethnology, as he crosses the border of "Holy Russia," is the ubiquity of the *Shrine*; and the limitless influence which it obviously exerts in and on the daily life of the members of that vast—mostly "orthodox"—congeries of human units. At every railway station and (let the gracious reader pardon a somewhat Hibernian magnification of fact !) every other eligible *locus*, around and within the vast Russian territory, the candles of the shrine burn *continuously* in presence of the Holy Image. And the moment the sacred flame is sighted, even by a distant side-glance, the ceremony of *blessing* is performed with the studied grace and dignified devotion which only prolonged and careful training can confer; by every member of either sex, and of all ranks and social conditions. Thus the majestic movement of salutation of the superior power, divine and human, is one of the surface features of cultured Russian existence. And the stranger—when not an object of special suspicion—is greeted by officials with corresponding gracious courtesy. (I have special pleasure in recalling the fact that I found the street policeman of Moscow—not exactly as I had anticipated, but—the most politely obliging public official with whom I have ever found myself in contact. And I may just mention, incidentally, that I found my seraps of German much more useful to me than the corresponding French ones which I ventured to produce. This fact has inevitably been more deeply impressed on me by subsequent happenings.) A breezy whiff of the superincumbent atmosphere of that prolongation of Lake Ladoga, which is known as the river Neva, cannot fail to impress the appreciative tourist of the thaw season with a vivid feeling of the influence of the climatic factor on the conditions of Russian daily life. And a run through the suburbs provides architectural recollections which are vividly renewed on every passing survey of the diminutive "shanties" which now replace the formerly majestic buildings that bordered our own Sackville Street, before the thrilling events of last year's historic Easter Week ! The geological famine of stone necessitates the wooden construction of all the build-

ings of minor importance, and the thermal necessities of a six-months (or more) winter imperatively demand diminutive apartments, as the exclusive condition of possible heating within ; with the duplicated glass windows which help to muffle the tenants from the external frigidity. Both conditions contribute to the establishment of the national record : that all habitable Russia is burnt out, on an average, once in every seven years. They also account for the genesis of the characteristic Russian (negative) complexion. The corresponding practice is carried out on the railways, which thus display another national characteristic in their Lilliputian carriages (and gauges), and the hopeless stuffiness of their compartments. I can never forget the sensations called up in a heated carriage, on being transferred thereto at my "first stop" on the way to Moscow, after complaining of the cold to the *courteous* and *obliging* guard. It was a sleeping carriage—suitable to the 14-hour run from St. Petersburg to Moscow. Before reaching the next station I had arrived at the conclusion that if I slept once there I should have but a slender chance of ever awaking, and gladly returned to my former seat at the earliest opportunity. (The sleeping compartments are furnished with a hinged shelf which, when turned down into the horizontal position, provides an upper berth like that of a ship—and another contributory factor to the soporific stuffiness.)

The principal memento which I carried off on concluding my first visit to the most northern of the world's capital cities was a sheaf of picture post-cards—which display an autoeratic splendour of their own that I have never found equalled elsewhere. It is a minor example of the numerous artistic specialties which are produced in Russia better than anywhere else. Such things are always made possible by a patronising despotism. But the superior azure hue of the *far more distant* sky of the metropolis of Tsardom can never fail to furnish contributory inspiration, and the sunsets of St. Petersburg—especially with the gradual ascent of summer—will always, by themselves alone, make a trip thither well worth the while of the appreciative West-European : more especially if an owner of the temperamental quality of the emotional Celt.

On to Moscow ! A run of about 400 miles over a monotonous

land surface which fails to present even an appreciable hump to diversify the evenness of the horizon around, with its cold-pinched larches and patches of gradually disappearing winter snow, its sparsely scattered villages and diminutive wooden cottages—conveys the passenger to the weirdly fascinating former capital of the Tsars, and present metropolis of Eastern Christendom. The approach suggested to an imaginative French visitor of the ante-railroad generation the simile of a vast seaport : “ cette apparition d'une escadre en pleine terre ; c'est ce qui m'est arrivé quelquefois en Holland, et un jour en Angleterre après avoir pénétré dans l'interieur du pays entre Gravesend et l'embouchure du fleuve ; eh bien ! tel est exactement l'effet qu'a produit sur moi la première vue de Moscou : une multitude de clochers brillait seule au dessus de la poudre de la route,” And a studious survey of the interior elicited the reflection that : “ Moscou n'est pas le produit du génie, les connaisseurs n'y trouveraient aucun monument digne d'un examen attentif ; ce n'est pas non plus que une majestueuse solitude où le temps démolit en silence ce qu'a fait la nature : c'est l'habitation désertée de quelque race de géants, race intermédiaire entre Dieu et l'homme, c'est l'œuvre des cyclopes.” And the contemplation of the actual focal centre of the original Tsardom inspires him with almost poetic fervour of philosophic eloquence—effectively guarded too by historical knowledge, and reliable grasp of the value of the emotional factor in the recording, as well as in the making, of national history. “ Le Kremlin n'est pas un palais comme un autre, c'est une cité tout entière, et cette cité est la souche de Moscou : elle sert de frontière à deux parties du monde ; l'Orient et l'Occident ; le monde ancien et le monde moderne sont là en présence ; sous les successeurs de Gengis Khan, l'Asie s'était ruée une dernière fois sur l'Europe ; en se retirant, elle a frappé du pied la terre, et il en est sorti le Kremlin ! “ Le Kremlin est sans contredit l'œuvre d'un être surhumain, mais d'un être malfaisant. La gloire dans l'esclavage, telle est l'allégorie figurée par ce monument satanique, aussi extraordinaire en architecture que les visions de saint Jean sont extraordinaires en poésie ; c'est l'habitation qui convient aux personnages de l'Apocalypse. En vain chaque tourelle a son caractère et son usage particulier, toutes ont la même signi-

fication : *la terreur armée !*" The vividness of the language conveys convincing proof of the very powerful impression made upon a perceptive and well-informed visitor.

I will now take a downward step and mention some of my personal impressions. The large hotel where I stayed was within easy range of the Kremlin, and had a well-versed guide ever ready to earn an honest fee. He knew his lesson very well, indeed ; and we had a day of it together around and through the Kremlin labyrinth and the more important parts of its vicinity. As we emerged from the hotel we were "spotted" by a lad of about seventeen, a boy detective spy, who kept us in range during the whole period of our peregrination. Was the experience irritating ? By no means ! I was not there with a mischievous object, and the unasked-for supervision gave an unexpected importance (and enforced dignity !) to the occasion. We passed more than one shrine, with its unquenching lights, before reaching the Holy Gate, through which the irreverent or-unwary passenger who entered without uncovering his head thereby forfeited his life, and saw the "*equality* of all men," in presence of the Holy Image, demonstrated—as it can be seen nowhere else, I believe, on the face of our planet. I was conducted through the three churches of the Virgin which make the sacred Kremlin the focus of the vast Empire of Holy Russia : that of the *Assumption*, in which the Tsar *crowns himself* ; of the *Annunciation*, in which he is married ; of the *Ascension*, in which he is buried. I was told, in subdued tones, the story of each of the principal monuments—and can never forget how, when I raised my hand, *very slightly* (for I felt how truly I was on holy ground), with the query : "Do you refer to this ?" My guide whispered nervously in my ear : "Take care, sir, don't point ; there would be trouble. The Russians wouldn't stand it : what they say is, 'a Church is not a Museum'" ; the English translation of which is that if I had profanely used the elevated index finger I would have been whirled out there and then by the devout bystanders, and had every bone in my body broken on that terrible pavement—which looks as if specially constructed for such an operation ! (And I could not help remembering the British and Yankee tourists "doing" St. Peter's in Rome on Christmas Day, with

open Baedeker and opera glass !) I gladly performed my homage before the Holy Image attributed to St. Luke : *the centre from which the Russian Empire has been roped in, and by virtue of whose presence it has been governed throughout the whole period of its existence.* I was shown the niche opposite the same, in which the gigantic Ivan the Terrible used to sit on ceremonial occasions, and from which he sprang out to seize, *with his own hand*, the unwary pagan who despised or neglected the orthodox rite in passing. He sometimes wed out a couple of scores on such occasions, and handed them over to his guards. On the following day, on the adjacent *Place Rouge*, after an impressive homily to the crowd, every offender's head was removed. (Ivan knew the practical value of Bacon's aphorism !) On hearing this story I could not help remarking to my guide : "No wonder that he made you all a very holy people"—to which he rejoined : "Oh, yes, sir, he was a very good man !" Then I was told how he used to sweep the vast surface of the country periodically with his guards, round up the Tartar princes and their looting generals, and have a gala day of a couple of hundred decapitations on his victorious return. When I commented : "No wonder he made this so great an Empire," the reply again was : "Oh, yes, sir, he was a very good man !" "And used he to remove any of those Princes' heads with his own hand, as Peter the Great is said to have *enjoyed* doing?"—"Well, no, sir, the only Prince he killed with his own hand was his own son."—"Why ! your original Tsar must have been a Saint !"—"Oh, yes, sir, he was a very good man !" The refrain was always repeated with the utmost gravity ! Outside the Holy Gate of the Kremlin, the inevitable *Russian tip* procured admission to the weirdly picturesque Church of St. Basil (which is now opened to the public only on Ivan's birthday) that was erected to commemorate the origin of the Tsardom by its "terrible" founder—who took care to secure its guaranteed uniqueness by having the eyes of the architect gouged out on his admission, after the completion of his task, that he might possibly be able to design something still better. My interjection on hearing this gruesome story : "What a model ruler he must have been !" again produced the inevitable retort : "Oh, yes, sir, he was a very good man !"—And when I went

on to say : " I believe your pious Tsar ruled a long time, and was enabled in that way to confirm his power so effectively," I was told : " Oh, yes, sir, he reigned over fifty years, and then retired, and entered a monastery where he died." Then, when I could not refrain from the closing comment : " Oh, I felt sure that you'd end up by making him an angel ! " I was countered with the already familiar : " Oh, yes, sir, he was a very good man ! " I have certainly never met with so vivid an illustration of the Prince of Denmark's aphorism : " There is nothing either good or bad, but thinking makes it so." But, nevertheless, strange as it may sound to the ears of twentieth-century (now problematical !) civilisation, I believe that my appreciative guide's estimate was in the main a correct one. Let the charitable reader remember that Ivan was permanently placed " up against " the " Yellow Peril " in its most demoniacal form, when the vagrant Tatar hordes lived by loot only, accompanied with the practice of the associated *amusement* of infliction of the most horrible tortures and mutilations on their daily victims ; a fact which bears the permanent etymological testimony afforded by the introduction of a single new letter in the tribal name : *Tartars* must have come from infernal *Tartarus*—and nowhere else ! Once more, opinion is everything in such matters ; all depends on *the vote*. Thus the observant Marquis de Custine, an aristocrat en lightened by the revelations of the French Revolution, and who sketched a graphic account of Ivan on the occasion of a visit to Russia a couple of decades after the Napoleonic invasion, includes therein a somewhat disrespectful appreciation of our contemporary Virgin Queen. " Ivan ressent pour Elisabeth d'Angleterre une sympathie qui tient de l'instinct ; les deux tigres se devinent, ils se reconnaissent de loin ; les affinités de leur nature agissent malgré la différence des situations qui explique des actes. Ivan IV. est un tigre en liberté, Elisabeth un tigre en cage." Readers will not, of course, adopt the view-point ; but the instructiveness of the object-lesson cannot be contested. (In language most gracious she promised him a *refuge*, inclusive of fullest religious tolerance, whenever his prickly Russian couch became absolutely intolerable.) Then let it be remembered that the terrible Ivan was the protector of the *serfs* against the *boyars* ; to the

former he gave a *Duma* ; for the latter he went about with a *boar-spear* in hand, the penetrating argument of which he never hesitated to apply in a contradictory case.

The palace of the Kremlin presents an object-lesson in the evolution of courtly architecture : from the stunted and *suggestively oppressive* council chambers of the Chinese founders and Tatar conquerors of Moscow, to and through those of Ivan the Terrible and of Peter the Great ; down to the gorgeously glorious Throne Room, Ball Room, and Banqueting Hall of the present (and now "late" and presumably last) Autocrat of all the Russias.

Moscow from without suggested to a former observer (above quoted) a forest of masts. From the spot on Sparrow Hill from which Napoleon watched the *Fire*, I surveyed a panorama which—if I could only blot out the resplendent cupolas and some of the larger patches of white—recalled with startling vividness that of one of our own western *bogs* ; with its vast area of green roofs, and approximately peat-coloured brick walls ! Within, it at once made me think of our own formerly flourishing city of Galway : every man had (very evidently) dumped down his house on his own plot—how and when and of what shape it pleased him. In the principal business street on passing a carelessly-kept front with closed doors and windows, I asked my guide whether that had been a case of recent failure in business. The prompt reply was : " Oh, no ; that shop belongs to a millionaire silk-merchant ; he only opens twice a week." A little further on, he pointed out another which was opened but on one day of the week. I congratulated him on being a denizen of a free city, and told him that I knew of an urban community in which such business conduct would give a shopkeeper a strong claim on a private chamber in one of our refuges for psychological nonconformity. Russia was not disposed to move on, to come up to the front line. But they surely do some things best in Moscow. One of the most vivid recollections of my life is that of my first hearing a Moscow bell, and one of my hankering desires since leaving the metropolis of Eastern Christendom is that I may again hear the nuns of Moscow sing the Vespers in the Novo Divitchi Monastir, to which so many Russian autocrats have retired to die. Let medical men (and ladies) not forget that

Catherine the Great's fee to her British inoculator still holds the record. And let both scientist and suffragette remember that Princess Dachkoff was the foundress and first President of the Imperial Academy of Sciences of St. Petersburg, and thus took a prominent leadership in the early stage of the culture of the cultured society of Russia—which is now, I believe, *the* most cultured of any in the civilised world. Personally, as a sympathetic student of the history of humanity and the thorny pathway of its toilsome “progress,” I must often recall with added interest my examination of the whip and riding-boots of the episcopal founder of the House of Romanoff, which were religiously preserved, with his sacerdotal regalia—and many other personal belongings, in his former residence beside the monastery over which he had presided—with the cradle in which the (late) Tsar was rocked, and the playthings, and chair and table (with the furniture thereof) which the infant Nicholas used in that, the most brightly auspicious, period of his very varied existence. And of the “Tsar of cannons” which Peter the Great had constructed as a permanent memento of the birth of the heir to his throne whom he afterwards murdered, for “reasons of state.” And of the truly Cyclopean Bell which Ivan the Terrible had prepared as a monumental record of the birth of his daughter. But the memories of Moscow are too tyrannically engrossing ! So I must conclude—with the reflection that those who incline to the view, which somebody has expressed before now, that the two cardinal curses of our Western civilisation are *Mrs. Grundy* and the *Attorney*, cannot fail to take a vivid interest in the future of that vast community in which neither of those worthies had ever secured an even middling show. And all philanthropic minds must now feel an anxious interest in the coming solution of the question : whether the cosmopolitan “progressive” movement which is at present out “to make the world safe for democracy”—while making it progressively unsafer for everything else—is going to provide suitably effective vaccines (or other prophylactic therapeusis) for the immunisation of that limitless congeries of tribes and nations (so suddenly “regenerated” and *let loose*) from the complications and consequences of the surely and swiftly advancing inundation of those most aggressive and most diffusive of all known social infections.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—R. D. PUREFOY, M.D., F.R.C.S.I.

General Secretary—J. A. SCOTT, M.D., F.R.C.S.I.

SECTION OF OBSTETRICS.

President—GIBBON FITZGIBBON, M.D., F.R.C.P.I.

Secretary—BETHEL SOLOMONS, M.D., F.R.C.P.I.

Friday, April 20, 1917.

THE PRESIDENT in the Chair.

Hæmatemesis and Melena Neonatorum.

DR. BETHEL SOLOMONS read some notes on a case of the above. The bleeding started on the day after the delivery, which was uneventful, and large amounts of red blood were passed by mouth and rectum. The detailed history of the case was given, and the following points were noted:—

1. That the child was a female—the condition being supposedly more common in males.
2. The fact that ice-cold water, which is recommended in these cases, causes great pain; while, when the chill is removed, haemorrhage does not recommence, and there is no more pain.
3. That starvation can be sustained for so many days (six in this case).
4. That the cure in this case was effected by good nursing, warmth, quiet, water, a mixture of adrenalin chloride and calcium lactate, and the injection of horse serum; that the baby disimproved when the serum was temporarily stopped, and improved when administered again; that large doses of serum give better results than small, and that, when given hypodermically or by mouth the result seems to be the same; that while no anaphylaxis was noticeable in this case, the physician should always be ready for this phenomenon, for which the best treatment is pituitary extract in small doses.
5. That

it was possible that the ulceration in the gastro-intestinal tract was caused by some toxin carried from the mother to the child while still *in utero*.

DR. TWEEDY said these cases nearly always are due to duodenal ulcer, and horse serum in massive doses appears to act as a specific. The dose should not be smaller than 10 c.cs. It is seldom necessary to repeat the dose. Once the bleeding ceases the infant's condition rapidly improves, and perforation of the bowel never appears to occur. Starvation is unnecessary for more than two days; breast milk may then be given.

DR. SHEILL said he was particularly interested in this case, as he published notes of a similar one about two years ago, and his treatment by horse serum was the first recorded success. He disagreed with Dr. Solomons regarding the starvation of the child for six days, and he believed a more rapid and successful result would have been obtained—as it was in his own case—by 10 c.c. doses of serum, instead of the smaller and repeated doses; and, moreover, the grave risk of anaphylaxis would be avoided.

DR. CROFTON said he thought the treatment admirable, and discussed the mechanism of the action of the serum. He thought it must act by inducing a larger production of thrombin, since, if mixed with fresh blood outside the body, it delayed clotting. He described two cases of anaphylaxis occurring after the first injection of serum intravenously, and discussed the probable cause of the change in the serum producing this. These cases had led him to introduce pituitrin for the treatment of anaphylaxis. The only criticism he had to offer of Dr. Solomons treatment was the exhibition of lime salts, which could have been better given in the form of the mother's milk.

DR. SOLOMONS, in reply, said that gastro-intestinal haemorrhage in the new-born was caused by many other factors than duodenal ulcer—*e.g.*, intussusception, &c. He thought a toxæmic theory likely, and cited *post-mortems* on eclamptic patients where the very evident cause of death was intra-abdominal bleeding. There were other symptoms present which led him to this idea. He thought, therefore, that starvation was an important part of the treatment, as it was

in the successful treatment of the toxæmias of pregnancy. He did not think that too much can be learned from one case, and preferred 5 c.cs. in repeated doses to the dose in the case reported by Dr. Sheill. Although Henoch is an ancient authority, it was he who recommended ice-cold water, but he (Dr. Solomons) had the chill removed.

Vaginal Plug.

DR. HASTINGS TWEEDY read a paper on the ability of the vaginal plug to cause a direct pressure on the uterine vessels and on the side walls of the pregnant uterus. He said that the plug had a different significance in Dublin to that which it enjoyed elsewhere. It was impossible to cause compression of the uterine vessels if rolls of cotton wool (each tied round with a string) were passed into the vagina with the aid of a speculum and plugging forceps. If, on the contrary, the left hand was entirely inserted into the vagina and small pledgets of moist cotton wool were inserted by means of the other hand, it was comparatively easy to press from 30 to 40 separate pieces into the canal and to force up the lateral fornices until a hard tumour could be felt rising high above Poupart's ligament.

In the year 1898 he (Dr. Tweedy) had brought forward evidence that a plug so inserted was able to stop the circulation of the uterine vessels. He had clearly stated his reasons for this belief, and he is still at a loss to understand why his views are not generally accepted.

Recently, in a series of Cæsarean sections, he has been able to demonstrate beyond a shadow of a doubt that the plug acts in the manner explained in his former paper. His colleagues in the Rotunda Hospital, his Assistant Masters, and the students have all had the facts demonstrated to them, and it is no longer permissible to deny the accuracy of his contention.

SIR WILLIAM SMYLY said that he considered Dr. Tweedy's paper of very great practical importance, and not the less so because the views expressed in it were not in harmony with those generally held by obstetric writers. When he (Sir William Smyly) became Master of the Rotunda Hospital

version and extraction were generally accepted as the only rational treatment in cases of severe accidental hæmorrhage, but the results were so bad that he abandoned it. Rupture of the membranes no doubt succeeded in the majority of cases, but altogether failed in some of the worst. He then resorted to plugging the vagina, and that treatment had been adhered to by all succeeding Masters, and the Reports of the Hospital were sufficient proof of its success. In his paper Dr. Tweedy had very confidently affirmed that the plug does control the hæmorrhage, and that it does so by compressing the uterine arteries, which at term are very closely related with the lateral fornices of the vagina. In both these statements Sir W. Smyly agreed with him, and could confirm his observations as to the control of the circulation in those vessels by pressure from the vagina during Cæsarean section. He did not, however, see that that disproved the older explanation: both might be, and probably were, true. In many cases in which no symptoms of hæmorrhage had been noted, evidences were to be found in the placenta after birth of former limited hæmorrhages. What was the explanation of the limitation and control of such hæmorrhages if it were not that the capacity of the spaces into which it occurred were limited, and when the tension became equal to the blood pressure in the sinuses the hæmorrhage was checked? When he met in works on obstetrics with statements as to the futility of plugging he always sought the author's directions, and generally found that gauze or dry cotton was recommended for the purpose. Such plugs would, no doubt, be useless, and would soon be found quite loose in the vagina. The method described by Dr. Tweedy, and which he had learned from him, was efficient. Concealed internal hæmorrhages were altogether different from the cases of external hæmorrhage: they were generally, if not always, associated with eclampsia or other toxæmias, and the effusion would be found as often in the peritoneal cavity as in the uterus; or in both. Abdominal section was the treatment in such cases.

DR. SHEILL suggested that the fist-in-the-vagina method would be of great service during Cæsarean section as a hæmostatic during placental removal and uterine suture.

DR. BETHEL SOLOMONS said that he had found the treat-

ment of external accidental haemorrhage by vaginal plugging infallible. He had been called to cases where the plug had failed to stop the haemorrhage, but he always found that bad technique was the cause. While he approved of endeavouring to find how the plug stopped the haemorrhage, he hoped that vaginal manipulation in cases of Cæsarean section would not be persisted in, as these manipulations converted a comparatively safe operation into a dangerous one. Concealed haemorrhage must be treated by laparotomy.

DR. BARRY said he discarded gloves when plugging the vagina, as he had found it difficult to plug satisfactorily if he wore them.

THE NEEDS OF MATERNITY AND INFANCY.

THE following resolution was passed at a meeting of the Standing Joint Committee of Industrial Women's Organisations held on June 5th, 1917:—"Resolved: That the Standing Joint Committee of Industrial Women's Organisations, believing that national measures are necessary to meet adequately the needs of Maternity and Infancy, ventures to ask the Committee responsible for 'Baby Week' to consider the possibility of bringing forward the following proposals at the meetings arranged to be held during the week:—1. That it be made compulsory on Public Health Authorities (a) to establish Maternity Committees, (b) to adopt a scheme suitable to their locality, making adequate provision for the health of mothers (including treatment as well as advice) before, at, and after confinement, and for children up to school age. 2. That the powers of Local Health Authorities should be extended so as to enable them to provide dinners and milk for mothers and young children and any other developments deemed desirable in the interests of Maternity and sanctioned by the Local Government Board. 3. That steps should be taken to enable Local Health Authorities to supply pure milk at a cost within the reach of all classes. (4) That a Ministry of Health based on the Public Health work of the Local Government Board, with a Maternity Department partly staffed by women, should be immediately created."

SANITARY AND METEOROLOGICAL NOTES.

VITAL STATISTICS.

For four weeks ending Saturday, May 19, 1917

IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended Saturday, May 19, 1917, in the Dublin Registration Area and the eighteen principal provincial Urban Districts of Ireland was 18.3 per 1,000 of the aggregate population, which for the purposes of these returns is estimated at 1,127,268. The deaths from all causes registered in the week ended Saturday, May 19, and during the period of four weeks ended on that date, respectively, were equal to the following annual rates per 1,000 of the population :—Nineteen Town Districts, 18.3 and 19.0 ; Dublin Registration Area, 18.4 and 20.3 ; Dublin City, 19.8 and 21.3 ; Belfast, 18.7 and 18.3 ; Cork, 18.4 and 20.2 ; Londonderry, 22.2 and 20.2 ; Limerick, 13.5 and 19.3 ; and Waterford, 13.3 and 18.5.

The deaths from certain epidemic diseases—namely, enteric fever, typhus, small-pox, measles, scarlet fever, whooping-cough, diphtheria, dysentery, and diarrhoeal diseases—registered in the nineteen town districts during the week ended Saturday May 19, 1917, were equal to an annual rate of 0.8 per 1,000. Among the 141 deaths from all causes in Belfast were 2 from enteric fever. Of the 27 deaths registered in Cork 1 was from whooping-cough. One of the 10 deaths from all causes in Limerick was from enteric fever. One of the 8 deaths recorded in Portadown was from diphtheria.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock and Kingstown. The population of the Area is 399,000.

In the Dublin Registration Area the births registered during the week ended May 19, 1917, amounted to 189—107 boys and 82 girls, and the deaths to 158—73 males and 85 females.

DEATHS.

The deaths registered, omitting the deaths (numbering 17)

of persons admitted into public institutions from localities outside the Area, represent an annual rate of mortality of 18.4 per 1,000 of the population. The rate for all deaths registered during the twenty weeks of 1917 was 26.1, while in the corresponding period of the preceding ten years, 1907-1916 it had been 26.0.

The 141 deaths appertaining to the Area included 1 from measles, 1 from scarlatina, 3 from whooping-cough, 1 from diphtheria, 1 from influenza, and 4 from diarrhoeal diseases. In the three preceding weeks deaths from measles had numbered 7, 8, and 6; deaths from whooping-cough, 1, 3 and 3; from influenza, 0, 3 and 0; deaths from diphtheria, 1, 1 and 1; and deaths from diarrhoeal diseases 4, 0 and 1, respectively. No deaths from scarlatina had been recorded during the three preceding weeks.

Tuberculosis caused 31 deaths, as against 27, 36 and 23, respectively, in the three weeks preceding. Of the 31 deaths ascribed to tuberculosis, 25 were referred to pulmonary tuberculosis, 1 to tubercular meningitis, 1 to abdominal tuberculosis, and 4 to disseminated tuberculosis.

Seven deaths were caused by cancer; 2 by simple meningitis; 12 by pneumonia (6 by broncho-pneumonia, 2 by lobar pneumonia, and 4 by pneumonia, type not distinguished); 13 by organic diseases of the heart, and 16 by bronchitis.

No deaths were registered as having been caused by violence.

Among deaths of infants under one year old, 5 were ascribed to convulsions, 6 to premature birth, and 2 to congenital debility.

Thirty-five of the deaths registered during the week appertaining to the Area were of children under 5 years of age, 21 being infants under one year, of whom 10 were under one month old. Thirty deaths of persons aged 65 or upwards were registered, including 26 deaths of persons of 70 years or upwards.

Of the 141 recorded deaths 57 occurred in hospitals and other public institutions.

STATE OF INFECTIOUS DISEASES.

The following returns of the number of cases of Infectious Diseases notified under the "Infectious Disease (Notification)

Act, 1889," and the "Tuberculosis Prevention (Ireland) Act, 1908," have been furnished by the respective sanitary authorities:—

TABLE I.—SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area—(viz., the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock and Kingstown), and in the Cities of Belfast, Cork, Londonderry, Limerick, and Waterford, during the week ended May 19, 1917, and in each of the preceding three weeks.

A dash (—) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Measles	Rubella or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain) ^a	Encephalitis or Typhoid Fever	Erysipelas	Puerperal Fever	Whooping-cough	Cerebro-spinal Fever	Diarrhoeal Diseases	Pulmonary Tuberculosis	Total	
		Apr.	May	Apr.	May	Apr.	May	Apr.	May	Apr.	May	Apr.	May	Apr.	May	Apr.	May	
City of Dublin	Apr. 28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28	40
	May 5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	34	40
	May 12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	30	37
	May 19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28	38
Rathmines and Rathgar Urban District	Apr. 28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	May 5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	May 12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	May 19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pembroke Urban District	Apr. 28	14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14	14
	May 5	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14	14
	May 12	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17	17
	May 19	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14	14
Blackrock Urban District	Apr. 28	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	12
	May 5	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	6
	May 12	•	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	May 19	14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Kingstown Urban District	Apr. 28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	May 5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	May 12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	May 19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City of Belfast	Apr. 28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21	21
	May 5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	24
	May 12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20	20
	May 19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14
City of Cork	Apr. 28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
	May 5	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	8
	May 12	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7b	7b
	May 19	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	7
City of Londonderry	Apr. 28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	7
	May 5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	3
	May 12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	4
	May 19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City of Limerick	Apr. 28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	May 5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	May 12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	May 19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City of Waterford	Apr. 28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	4
	May 5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
	May 12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	4
	May 19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	4

^a Continued fever.

^b Not including one case of varicella

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

Table II. exhibits the number of cases of certain infectious diseases treated in the Dublin Hospitals during the week ended May 19, 1917, and the number under treatment at the close of each of the three preceding weeks.

TABLE II.

Diseases	No. of Cases in Hospital at close of week ended			Week ended May 19.				No. under treat- ment at close of week
	Apr. 28.	May 5.	May 12.	No. admitted	Dis- charged	Died		
Enteric Fever	6	10	7	2	—	—	—	9
Typhus	—	1	1	—	—	—	—	—
Small-pox	—	—	—	—	—	—	—	—
Measles	—	120	100	108	35	39	—	104
Scarlet Fever	20	20	20	7	2	1	—	24
Diphtheria	—	6	7	9	3	2	—	10
Pneumonia	—	21	18	26	7	10	—	23

* Exclusive of 9 patients in "Beneavin," Glasnevin, Dublin, the Convalescent Home of Cork Street Fever Hospital.

From this Table it appears that the cases admitted to hospital during the week ended May 19, and the cases under treatment at its close, respectively, were as follows:—Enteric fever, 2 and 9; measles, 35 and 104; scarlet fever, 7 and 24 (exclusive of 9 convalescents at Beneavin, the Convalescent Home of Cork Street Hospital); and diphtheria, 3 and 10. Seven cases of pneumonia were admitted during the week, and 23 remained under treatment at its close. Of the deaths in hospitals during the week 1 was from scarlatina.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, May 19, in 96 large English towns (including London, in which the rate was 15.4) was equal to an average annual death-rate of 15.3 per 1,000 persons living. The average rate for 16 principal towns of Scotland was 17.0 per 1,000, the rate for Glasgow being 18.4, and that for Edinburgh 16.8.

INFECTIOUS DISEASES IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell-Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended May 19. From this report it appears that of 61 cases notified, 29 were of pulmonary tuberculosis, 12 of other forms of tuberculosis, 10 of scarlet fever, 8 of diphtheria, 2 of erysipelas, and 1 of puerperal fever. Among the 462 cases of infectious diseases in hospital at the close of the week were 144 of pulmonary tuberculosis, 127 of measles, 71 of scarlet fever, 62 of diphtheria, 22 of whooping-cough, 9 of cerebro-spinal fever, 6 of erysipelas, and 1 of enteric fever.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of May, 1917.

Mean Height of Barometer,	-	-	-	29.970 inches.
Maximal Height of Barometer (3rd, at 9 a.m.),	-	-	-	30.371 ,,
Minimal Height of Barometer (18th, at 9 p.m.),	-	-	-	29.579 ,,
Mean Dry-bulb Temperature,	-	-	-	52.4°.
Mean Wet-bulb Temperature,	-	-	-	49.5°.
Mean Dew-point Temperature,	-	-	-	46.7°.
Mean Elastic Force (Tension) of Aqueous Vapour,	-	-	-	0.320 inch.
Mean Humidity,	-	-	-	81.6 per cent.
Highest Temperature in Shade (on 24th),	-	-	-	66.7°.
Lowest Temperature in Shade (on 7th),	-	-	-	39.4°.
Lowest Temperature on Grass (Radiation) (7th),	-	-	-	34.0°.
Mean Amount of Cloud,	-	-	-	61.0 per cent.
Rainfall (on 12 days),	-	-	-	2.980 inches.
Greatest Daily Rainfall (on 26th),	-	-	-	0.852 inch.
General Directions of Wind,	-	-	-	E., E.N.E.

Remarks.

Coming after one of the longest and most severe winters of modern times, May, 1917, proved a favourable and a pleasant month. The drought which began on April 18th lasted until the 9th, inclusive ; but from the latter date onward rain fell abundantly at intervals, especially on the evening and night of the 26th, when a heavy downpour accompanied widespread electrical disturbances. The isolated character of the rains and their heaviness illustrated the old saying :—

“ The oak before the ash,
We shall have a splash ;
The ash before the oak,
We shall have a soak.”

In 1917 the leafing of the oak preceded that of the ash by a full fortnight.

There was still a marked tendency to winds from northerly and easterly quarters, but the force of the wind was usually moderate.

“ Cold snaps ” prevailed from the 6th to the 10th and from the 15th to the 18th, inclusive, but for the rest the month was mild. At the beginning and towards the close there was a good deal of warm sunshine. In the fortnight ended Saturday, the 26th, however, the percentage of cloud was very high—namely, 82.5. Fortunately for vegetation there was an absence in the Dublin district of frost by night and of hail by day.

In Dublin the arithmetical mean temperature (53.9°) was 1.7° above the average (52.2°). The mean dry-bulb readings at 9 a.m. and 9 p.m. were 52.4° . In the fifty years ending with 1915, May was coldest in 1869 (M. T. = 48.2°), and warmest in 1893 (M. T. = 56.7°). In 1915 the M. T. was 52.0° , and in 1916, 52.1° .

The mean height of the barometer was 29.970 inches, or 0.019 inch below the corrected average value for May—namely, 29.989 inches. The mercury rose to 30.371 inches at 9 a.m. of the 3rd, and fell to 29.579 inches at 9 p.m. of the 18th. The observed range of atmospheric pressure was, therefore, 0.792 inch.

The mean temperature deduced from daily readings of the

dry-bulb thermometer at 9 a.m. and 9 p.m. was 52.4° , or 9.5° above the value for April, 1917— 42.9° . Using the formula $\text{Mean Temp.} = \text{Min.} + (\text{Max.} - \text{Min.}) \times .47$, the value is 53.5° , or 1.7° above the average mean temperature for May, calculated in the same way, in the thirty-five years, 1871–1905, inclusive (51.8°). The arithmetical mean of the maximal and minimal readings was 53.9° , compared with a thirty-five years' average of 52.2° . On the 24th the thermometer in the screen rose to 66.7° —wind, S.W. ; on the 7th the temperature fell to 39.4° —wind, calm. The minimum on the grass was 34.0° on the 7th.

The rainfall amounted to 2.980 inches, distributed over 12 days. The average rainfall for May in the thirty-five years, 1871–1905, inclusive, was 1.970 inches, and the average number of rain-days was 15. The rainfall, therefore, was much above the average, whereas the rain-days were 3 below the average number. In 1886 the rainfall in May was very large—5.472 inches on 21 days ; in 1869, also, 5.414 inches fell on 19 days. On the other hand, in 1895, only 0.177 inch was measured on but 3 days. In 1896 the fall was only 0.190 inch on 7 days. In 1915, 1.601 inches fell on 12 days, and in 1916, as much as 4.634 inches fell on 21 days.

Fresh winds were noted on 5 days. There were fogs on the 12th and 20th. Thunder and heavy rain occurred on the 26th. There was unusual visibility on the 29th.

The mean minimal temperature on the grass was 44.0° , compared with 43.5° in 1916, 43.2° in 1915, 44.5° in 1914, 45.5° in 1913, 44.5° in 1912, 46.2° in 1911, 42.0° in 1910, 41.9° in 1909, and 37.6° in 1894. The maximum never fell short of 50° . The lowest maximum was 51.2° on the 15th. The highest daily minimum was 55.2° on the 25th. The mean maximum was 60.2° , the mean minimum was 47.6° .

The rainfall in Dublin during the five months ended May 31st amounted to 9.862 inches on 77 days, compared with 14.648 inches on 105 days in 1916, 9.490 inches on 82 days in 1915, 8.132 inches on 85 days in 1914, 13.899 inches on 91 days in 1913, 11.161 inches on 87 days in 1912, 5.986 inches on 69 days in 1911, 12.421 inches on 92 days in 1910, only 5.971 inches on 70 days in 1896, and a thirty-five years' average of 10.040 inches on 81 days.

At the Normal Climatological Station in Trinity College, Dublin, the observer, Mr. T. Mulock-Bentley, returns the highest reading of the barometer observed as 30.367 inches at 9 a.m. of the 3rd, the lowest as 29.610 inches at 9 p.m. of the 18th. The arithmetical mean temperature was 53.3°, the mean dry-bulb reading at 9 a.m. and 9 p.m. being 52.9°. Rain fell on 11 days to the amount of 2.69 inches, 0.81 inch being measured on the 26th. The number of hours of bright sunshine registered by the Campbell-Stokes sunshine recorder was 146.2, giving a daily average of 4.7 hours. The mean earth temperature at 9 a.m. was 53.4° at a depth of one foot below the surface, 49.7° at 4 feet. The highest temperature in the shade was 69° on the 24th, and again on the 25th; the lowest was 35.0° on the 7th.

Captain Edward Taylor, D.L., gives the rainfall at Ardgillan, Balbriggan, Co. Dublin (210 feet above sea-level), as 3.31 inches on 17 days, the rainfall being 1.22 inches above, and the rain-days 3 above, the average. The heaviest fall in 24 hours was 1.13 inches on the 26th. The rainfall from January 1st equals 10.86 inches on 85 days—that is, 0.42 inch above the average, while the rain-days have been 5 above the average. The thermometers in the screen rose to 67.2° on the 24th and fell to 35.1° on the 7th. The May rainfall at Ardgillan has ranged from 6.26 inches on 24 days in 1916 to 0.14 inch on 3 days in 1895.

Mr. T. Bateman, of The Green, Malahide, Co. Dublin, returns the rainfall at 2.845 inches on 16 days. The greatest fall in 24 hours was 1.075 inches on the 26th.

The rainfall at Stirling, Clonee, Co. Meath (231 feet above sea-level), according to Mr. J. Pilkington's return, was 2.66 inches on 15 days, the largest fall on any one day being 0.58 inch on the 26th. On the 12th also, 0.51 inch fell. From January 1st to May 31st, 11.34 inches of rain fell on 85 days at Stirling. The corresponding figures for 1916 were 16.43 inches and 110 days.

At the Ordnance Survey Office, Phoenix Park, Dublin, rain fell on 16 days to the amount of 2.910 inches, the greatest measurement in 24 hours being 0.702 inches on the 26th. The

total duration of bright sunshine was 104.9 hours, the largest amount recorded on one day being 13.4 hours on the 3rd.

At Cheeverstown Convalescent Home for Little Children, Clondalkin, Co. Dublin, Miss Mary Love recorded 2.08 inches of rain on 11 days. The largest falls in 24 hours were 0.56 inch on the 26th and 0.42 inch on the 12th.

At 89 Anglesea Road, Donnybrook, Dublin, Mr. F. C. Dudley Joynt measured 2.725 inches of rain on 10 days, the largest amount recorded in 24 hours being 0.860 inch on the 26th. On the 18th 0.420 inch fell, and on the 12th 0.410 inch.

Mr. Harold Fayle sends the following abstract from Sandford Lodge, Ranelagh, Dublin :—

Mean corrected Height of Barometer,	-	29.963 inches
Highest corrected Reading (2nd, 9 hours),	-	30.35 ,,
Lowest corrected Reading (18th, 21 hours),	-	29.59 ,,
Mean Dry-bulb Temperature, -	-	52.3°.
Mean Wet-bulb Temperature,	-	50.0°.
Arithmetical Mean Temperature,	-	52.7°.
Highest Temperature in Screen (24th),	-	68°.
Lowest Temperature in Screen (7th), -	-	32°.
Lowest Temperature on Grass (7th), -	-	23°.
Nights of Ground Frost,	-	7
Rainfall (on 11 days),	-	2.84 inches.
Greatest Daily Rainfall (26th),	-	0.85 inch.
Mean Amount of Cloud,	-	63 per cent.
Days of Clear Sky,	-	4
Days of Overcast Sky,	-	12
General Directions of Wind,	-	from N. to E.

Dr. Arthur S. Goff reports that the rainfall at Belfort House, Dundrum, Co. Dublin, was 3.02 inches on 17 days. The greatest daily rainfall was 0.85 inch on the 26th. The thermometric range was from 70° on the 4th to 38° on the 7th. The mean shade temperature was 54.7°. Thunder was heard on the 26th.

At Marino, Killiney, Co. Dublin, Mr. W. J. M'Cabe, the observer for the Right Hon. L. A. Waldron, registered 2.77

inches of rain on 14 days. The largest falls in 24 hours were 1.02 inches on the 26th and 0.45 inch on the 12th.

Dr. John H. M. Armstrong reports that at Coolagad, Greystones, Co. Wicklow, the rainfall amounted to 3.88 inches on 19 days. The heaviest fall in 24 hours was 1.37 inches on the 26th. A fall of 0.63 inch took place on the 12th. The rainfall at Coolagad in 1917, up to May 31st, was 10.51 inches on 79 days. Fog occurred on the 8th, 10th, 11th, 12th, 19th, 20th, 21st and 25th. Thunder was heard at 3.40 p.m. of the 12th, and thunder and lightning accompanied by heavy rain occurred on the evening of the 26th. The thermometer in the shade rose to 66° on the 24th, having fallen to 41° on the 5th and 8th.

Mrs. Sydney O'Sullivan recorded a rainfall of 3.39 inches on 16 days at Auburn, Greystones, the heaviest falls in 24 hours being 1.30 inches on the 26th and 0.59 inch on the 12th.

Dr. F. O'B. Kennedy, Resident Medical Officer at the Royal National Hospital for Consumption, Newcastle, Co. Wicklow, reports that the rainfall at that place was 3.98 inches on 19 days, the maximal fall in 24 hours being 1.34 inches on the 26th. The mean temperature of the air was 51.2°, the thermometer in the screen having risen to 67° on the 24th and fallen to 29° on the 9th. The mean maximal temperature was 57.9°, the mean minimum being 44.9°.

At the Rectory, Dunmanway, Co. Cork, the Rev. Canon Arthur Wilson measured 4.50 inches of rain on 18 days. The rainfall was 0.95 inch more than the average (3.55 inches). The heaviest fall was 0.78 inch on the 10th. The rainfall for the five completed months of 1917 amounts to 16.87 inches, or 8.33 inches less than the average of 11 years (25.20 inches). May was the first month since last November in which the rainfall exceeded the average at Dunmanway. The first eight days, and also the 14th, 15th, 27th, 28th and 29th, were very fine—bright and warm. The rest of the month was a typical dripping May—very favourable to vegetation. The drought which began on April 16th terminated on the evening of May 9th—so closed 23 days of “absolute drought” without even a drop of rain. Distant thunder was heard on the 26th.

PERISCOPE.

THE TRANSMISSIBILITY OF PELLAGRA.

DR. JOSEPH GOLDBERGER has been for some time past conducting a series of experiments to test the transmissibility of pellagra to the human being; a question which became of much importance since 1913, when Harris, of New Orleans, read his account of the successful inoculation of a monkey with pellagra. Sixteen individuals volunteered themselves to submit to experimentation. They varied in age from 26 to 42 years. No restraint of any sort was imposed. They were advised to continue their customary habits of life and diet. The materials used were blood, naso-pharyngeal secretions, epidermal scales from pellagrous skin lesions, urine, and faeces. The first experiment was made on April 25th, 1916, and the last on June 25th, and the patients were kept under observation until November 16th, and from the effects of the inoculations the author concludes that "the opinion that pellagra is a communicable disease gains no support from the work here (*Southern Medical Journal*, April, 1917) reported. The conclusion elsewhere drawn (Goldberger, 1916), that it is a disease essentially of dietary origin, brought about by a faulty, probably deficient, diet, is materially strengthened."

POLIOMYELITIS.

IN an interesting article on the therapeutics of poliomyelitis by Drs. Strauss and Nathan (*Medical Record*, Vol. XCI., No. 14) the authors lay great stress on the value of voluntary exercise. They remind us that "the only means of increasing muscular power and muscular substance is voluntary exercise." And they suggest its early adoption in the second stage of the disease "in order to make use of this method of increasing the power, some power must exist to begin with. A completely atrophic muscle cannot be exercised. In those cases of poliomyelitis, therefore, in which the motor neuron is inactive it is absurd to speak of muscular exercise as a method of treatment. It is only in those instances in which the anterior horn

cells are only in part destroyed or temporarily incapacitated that the atrophic muscle may be spurred to renewed activity by well directed exercise. This, as soon as the active stage of the disease has subsided and the hyperaesthesia has disappeared, is examined carefully for signs of returning power.

From day to day, but sometimes not for a very much longer period, it is found that some of the muscles previously completely flaccid will show weak contractions. The individual is then induced to contract such muscles a certain number of times during the day. The exercise must be carefully guarded. For it is known that partially atrophic muscles are easily tired, and overwork is extremely likely to impair their future usefulness . . . and as the atrophy from overwork is a very intractable condition and is indeed very likely to be permanent, the danger from overwork in infantile paralysis is evident." They hold that exercises which are complicated are harmful and cannot be too strongly condemned. Electricity finds no favour in their treatment ; its value is very ephemeral and secured at too great a cost. "The child, already supersensitive as the result of a serious illness, is forced to submit to a painful procedure, which, if often repeated, must have a deleterious effect upon the general nervous system." Their condemnation of massage in poliomyelitis is much more emphatic, and we believe thoroughly sound. "Massage seriously damages the delicate muscle tissues, delays recovery, and in not a few cases does permanent injury. . . . Massage is absolutely contraindicated in the treatment of poliomyelitis."

THE BRITISH X-RAY INDUSTRY.

MR D. N. DUNLOP, A.I.E.E., Secretary of the British Electrical and Allied Manufacturers' Association, King's House, Kingsway, London, W.C., brings to our notice the fact that a Section of this Association has been formed enrolling British manufacturers of *x-ray* and electro-medical apparatus with the object of improving the status and prospects of that industry by co-operation and research.

It is probably scarcely realised by the general public what

a very important part is played in modern medical practice by *x*-ray and electrical methods. Every hospital of any size has now a more or less elaborately equipped department for such work, and thousands of medical practitioners throughout the Empire devote their entire energies to this class of diagnostic and curative work. The *x*-ray examination of those wounded in the war has become a matter of routine, such examinations being in many cases made actually on the field by the employment of a motor *x*-ray installation; while the subsequent treatment of convalescent soldiers by electrical methods is daily increasing in volume and importance.

Before the war the major part of the *x*-ray and electro-medical apparatus used in this country was made in Germany and other foreign countries. Since 1914, however, great strides have been made by individual British manufacturers, and it is hoped that the enrolment of its members as a Section of this Association will further help to place and maintain this important key industry in a position where it can supply not only the home trade, but the whole of the Empire. British manufacturers have been at a serious disadvantage owing to lack of co-operation by which to meet the keen competition which existed in the world market. The Section is one comprising practically every manufacturing firm in the business in Great Britain; and its formation would seem, therefore, to offer a means whereby the manufacture of British electro-medical instruments may be systematised and fostered.

Already the Section has been able to co-operate with the Government in research work connected with the improvement of some essential instruments, and it is hoped that this will be only a preliminary to wider investigations.

The Section views most hopefully the future of the *x*-ray and electro-medical industry in this country, and earnestly invites the co-operation of medical men and hospitals with the object of supporting and strengthening the movement towards the exclusion of foreign-made apparatus. Any practical suggestions from *x*-ray workers will be most gratefully considered, the aim of the Section being to give such workers an entirely British service of everything required for their use.

THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

AUGUST 1, 1917.

PART I. ORIGINAL COMMUNICATIONS.

ART. V.—*The Conservation of Youth.* By EDWIN WOOTON. Author of “The Metabolism of Senile Decay,” “Some Suggestions in Micro-Biometrics,” “Renal Excreta,” and other Researches.

My article on “The Metabolism of Senile Decay” in the issue of this Journal for July, 1916, was an attempt to ordinate and synthetise the major facts having a part in the aetiology of such decay. In no particular was it intended to be exhaustive. An article having a field of such breadth can never be more than a suggestive summary.

From the correspondence addressed me, emanating in many cases from persons eminent in the world of biological science, it is conclusively evident that the great central truth of this synthesis—the part played by the decreasing ratio between body mass and liver mass—has come to stay. Modifications of the arrangement of facts there will be, and, as time goes on, there may be introduced many stages at present unseen; but all these things will be but the detailing of that which we now see broadly.

The desire of man for exemption from the common fate has starred all history with romantic legends and

myths. This is not the place to debate whether in myth or legend some truth may be expressed. It is as foolish to pooh-pooh such matters for utter nonsense as it is to accept the wild affirmations sometimes made by Egyptologists that the men of old Kam knew more of electricity and biology than do we of the twentieth century.

The belief of the mediæval alchemists was not in a tree of life, fountain of life, or fire of life. They sought for the ingredients of a compound which should confer bodily immortality. They did not find it, but they lighted on many useful facts. They learnt, for one thing, the invigorating power of arsenic, and—unless tradition blunders—they also acquired some familiarity with its treacherousness or—as the modern pharmacologist would say—its cumulative action.

Alchemy itself became senile somewhere early in the seventeenth century. Its teachings remained, and its believers were perpetuated, mainly in Societies, such as the Rosicrucian; but henceforth it was to be dissociated from accepted science. The latter had grown respectable, and—like many other respectable things—rather dull. It was to be handed out in booklets neatly bound, which disposed quite satisfactorily of all things, from the creative Intelligence to the dropping of an apple.

The discoveries of the electrical fathers, Volta and Galvani, had for a time little effect on philosophic thought. An age ludicrously affecting a love of pastoral simplicity, while steeping itself in coarse sensuality, and with its social economy in the melting-pot, failed to find any inspiration in the twitching of a frog's leg. But the birth of modern electrical knowledge was nevertheless the birth of the Christ of physical truth. The Herods sought vainly to slay the babe. Later, by a few years, betrayal came at the hands of every empiric possessed of enough money to acquire a coil; and then the world of science carried out the tragedy of the crucifixion, and labelled all things in electrical therapeutics—“Imposture.”

There were those, however, who followed no fashion of

saying the “correct” thing, but who thought; and in electricity these thinkers saw the very secret of life. It was “vital force.” These were the prophets of science; reaching forward on wings of faith to the far unknown; seeing truth, as prophets always see it, but distorted into an unlikeness of reality—a common failing with prophecies. We know what came of all that. We know how electrical science made giant strides in its application to matters altogether outside biology; and how within that narrower world, it very slowly gained any recognised position; and finally, stripped of all pretensions to be a life-giver, it took its place as an ordinary therapeutic agent.

When the advances of bio-chemistry had shown phosphorus compounds to be the most important constituents of nerve-centre tissue there were those who deemed that here they had touched the secret of life. If all vital action in the body was co-ordinated by the nervous system, and this the most advanced physiologists taught, and phosphorus could feed that system, then manifestly if one took phosphorus all one’s activities would continue unimpaired
—Q. E. D.

Undertakers managed to struggle along. People still died—some from taking too much phosphorus; others lived who could have been spared, if sent for. Phosphorus was not the elixir. Next, please!

Arrived, Mrs. Eddy, who said in effect:—“My dear friend, there’s no electricity, phosphorus, disease, pain, or anything else. All you have to do is to shut your eyes and open your mouth, and say: ‘All is good, and beautiful, and joyful’—and there you are! This is real Christian Science. Will it make a new leg grow when one has been amputated? What shocking ignorance! There are no legs, and no amputations.”

Mrs. Eddy died; so did a good many people who had been fooled by her teachings, in which, nevertheless, as is the way with heresies, there lay a germ of truth.

Came those who saw the one cause of senility in calci-

fication, and its one cure in lemon juice. Lemon trade booming; also that in drugs for removing pain under the pinny.

Came Dr. Tresham Dames Gregg, chaplain of St. Nicholas Within, Dublin, who announced a covenant of bodily immortality, as revealed in the Scriptures, and volunteered to reveal the necessary details for substantial cash payment—in advance.

Arrived Brown-Séquard: “ You may have observed gentlemen, that as a man nears his eightieth or ninetieth year he decreases in the power of begetting his kind. His sex glands lose functional activity. The diminution in their secretion is the cause of senility. While that secretion is produced a percentage is absorbed into the system, and keeps him active. Old men can be made young by submitting to subcutaneous injections of spermine.”

Brown-Séquard died without getting young.

But let this be said: medical journalism, that had nothing but gibe, and jest, and pitying scorn for the venerable physiologist, the journalism that regarded his utterances as conclusive evidence of his mental decay, has had to swallow its words. Brown-Séquard found no elixir. His premises were largely wrong, and his conclusions were in great part erroneous, but in his teaching was much newly-discovered truth. Séquard had scored a big victory, but had exaggerated its importance.

Arrived Metchnikoff. Some physicians look at everything through a speculum. Metchnikoff saw only one of our organs—the large intestine—and that he wanted to cut away. There have been surgical fashions in every decade. Some years ago cliterotomy was favoured for hysteria; removal of the appendix has been highly popular; but cutting away the large intestine never really “ caught on.” People concluded they would rather keep their bodily furniture. They took to the sour milk kindly enough. Then Metchnikoff died—whether from an in-

sufficient milk supply or too much intestine there is no evidence to show.

Personally—although I am no doctor—I believe in specialists, because curative science is too broad for one's knowledge of every branch to be that of an expert. And I believe in specialism being applied to physiology, because that has an immense field of minutiae. But in the search for a means of conserving youth and inhibiting senility, anything approaching to exclusive study is absurd. Senility is a senile state of the entire body. Hence, all ascertainable and relevant facts must be considered by each observer.

It is here that such lamentable mistakes have been made by the leaders in different spheres of research. Each has said in effect : “ Use *my* cure ; it is the only one genuine.”

During the past few years vast strides have been gained in our acquaintance with the physiology of glandular structures. The endocrinous glands, in particular, have been successfully investigated. The general character of the discoveries achieved reads like a romance. In the autocoids, divided into chalones and hormones, we have a very wonderful example of means adapted to ends. Such investigations show the body to be not only a laboratory, but a dispensary, and to have its own highly-skilled physicians. Rising from a perusal of any such work as that of Schäfer we can take up all the many lines of thought and labour travelled by leaders, and see that all converge. The apostles of neuro-chemistry, those of spermine, those who have dealt with the evils arising from intestinal septicism, and from calcification, and the endocrinous workers have pursued separate paths of truth. The facts established are in accord ; some are seen to be mutually complementary.

The trite saying that one cannot see the forest for the trees is very apt in physiology. The student needs to repeatedly put aside his enthralment with the chemistry of digestion, renal excreta, cerebral localisation, or what not, to take a general view of that entire subject of which

his specialty is only a small part. If he does not take such view it is a case of the speculum over again; a case of too much specialism—of seeing the man as all kidney, or stomach, or brain.

The student then must view the body as a machine, preparing from food—atmospheric, liquid, and solid—material for taking into its very substance, energising itself by forces latent in such food, casting out poisons from its waste, ordinating a host of functions, and co-ordinating all by means of the system we call nervous. And he must see that if at any one point of activity in this interacting host of activities injury is wrought, the effects may not only go the complete circle of functions, but arriving at the injured seat of a function they will still further impair this, so that the circle of evil will be made stronger and yet stronger with each revolution.

No matter how true bio-chemistry may be, no matter how intricate the somatic laboratory system, no matter what as yet hidden truths may come to light, it will always be a verity that the nervous system is the co-ordinating system for all activities, and that its vigour makes for the vigour of all, as its weakness does for their failure.

Any physiologist if asked to draw up effective rules for preserving what is called "health" could do so without difficulty. He would speak of purifying the system by oxygenation, by free intestinal action, by kidney flushing, by skin cleansing, and by massage. He would speak of diet, of nourishing the nervous system, of muscular exercise, and of rest.

If you synthetise such commonplace facts with what we know to be true in the teaching of Brown-Séquard, Metchnikoff, and other well known writers we have a schema of treatment which will go far in aiding longevity. Undoubtedly, it does retard senile decay, but there is nothing of finality in such a schema. So far as it goes, it works truly; it teaches nothing that will have to be unlearnt; but it only touches the fringe of the veil that hides the secret of life.

The researches in radio-activity conducted by Becquerel and others have led, as all the world knows, to a modification of the atomic theory. We may take it that atoms are composed of electrons; that electricity is the electron in action.

The body is thinkable as electro-atomic, atomo-molecular, micro-structural, and macro-structural.

With good reason, as we see with increasing clearness from day to day, the old alchemists spoke of the body as the microcosm. There is no form of energy found in the inorganic world that is not also to be found in the human system; but in man the forces of nature are led off from safety mains. He lives in the sun warmth, and the sun's unthinkable temperature is reduced to 98.2°. He visualises its light, but not at the rate of 186,000 miles a second. He has a nerve current of about 35 metres a second^a; the electric current travels through his system at a similar rate; it will pass along iron wire at about 17,000 miles a second. His brain occupies a variable twentieth of a second in recognising an impression, and, if this be visual, the impression must have been made on the retina for one-eighth of a second. His muscle contractile frequency may be set down as twelve per second. His endurance of cold is very limited. He is injured by alkaloidal and mineral doses that many brutes can take without resulting harm.

The dynamic forces of the human body are the forces of nature reduced to a minimum. In some cases they are forces that cannot be safely applied until they have been safety-mained. Thus it is with the energy of potassium. Crude potash is always dangerous; often injurious. Potash-carrying plants are never, as such, in any way toxic. Sulphur is an intestinal irritant, and depressing to the mind. Onions, rich in sulphur, may be freely eaten.

Of late we have seen medical science take its discarded Hagar and enthrone her. There is a "feeling" rather

^a Many observers give the current speed in the human body as near 140 metres a second.

than a rational belief that in electricity after all we have to do with the initial force whence come all others. I have nothing to say against this, but I wish to point out where some rather inexcusable errors have arisen.

All electrons are alike. An electron is a point charge of negative electricity, with a mass equal to about 1-2000 that of the hydrogen atom. There is no difference between the electrons from mercury, iodine, or a mutton chop.

In Ionic Medication we have to do with ions. These are chemical molecules from materials in the electrolyte. Although containing electrons, they are not composed of electrons in the free state. Ionic medication may or may not be a good way of getting the electrolytic material used into the cells, but it is not mere electrification.

The body is never free from electrification, but it is discontinuous. The electrical discharges of the body are in closed circuits, whose structural media (mainly muscles) are in some cases associated, in others not so. When a muscle acts, electrons are released, but you cannot lead off electricity from an uncut body.

Very possibly, as I am not a medical practitioner, it would be presumptuous for me to express any opinion on a point in therapeutics, but such presumption would be microscopic compared with the colossal cheek of the man who thinks he will help nature by treating the body to a dose of high potential. It may be as justifiable to use an enormously potential current, whatever its character, as to give a huge dose of iron or ipecac; but such current resembles the drug doses in being quite unsuited for aiding the continuance of the metabolic and other processes we associate with youth.

As I have pointed out, we cannot lead off the electrical force of the body and so determine the total potential. We can only deduce it from body mass, muscle mass, and relative facts.

So far as promotion of vitality is concerned—as distinct from the work of the practitioner—an experience of something like a quarter of a century has convinced me that

success can be gained only by (1) using a continuous (galvanic) current, (2) using broad electrodes, (3) using a current of mild strength, and (4) using it for many hours daily.

Under the influence of such a current one sees nervous vigour aided, flesh made, an all-round improvement in nutrition, and an absence of the headaches and relapses and other troubles so often cropping up in the "heroic" electrical treatment of the sick.

I do not think that in high frequency we have any correspondence with a single biological frequency. I defy the advocates of it to find a single human activity harmonising with it; and I hold it to be irrational to thrust a new law of frequency upon these activities.

Between the closest synthetic imitation of a natural product and the product itself there is always a difference. During many years chemists wondered at the "why?" of it. Some cases could be attributed, of course, to isomerism, but in others the atomic construction of molecules seemed identical. We know now that there is always an X cause of difference. It may be a something that has eluded the analyst, and that cannot therefore find a place in synthesis.

It must be kept in mind that there are subtle differences between an animal product as it obtains in the body and after it has been extracted. The haemoglobin of a red blood-cell is housed and protected, and is efficient for all purposes proper to it. But haemoglobin outside the body is very different potentially. It must submit to being treated as all foodstuffs are treated, and to go through the foodstuff channels. Haemoglobin when pumped into the tissues is merely so much foreign material, a homeless wanderer, and is dealt with as vagrant waste.

The attempt to build up tissues and to control metabolism otherwise than by a channel which exercises the power of vital filtration (absorption)—as is the case throughout the digestive canal—has always failed. At best, intravenous and hypodermic injections of "nutrient" material are only expedients for temporarily sustaining strength.

This affords one reason for my refusing to include Ionic treatment amongst physiological aids. I object to the ingestion of anything intended to take part in general nutrition by any avenue other than the digestive canal. It must again be pointed out that I am speaking of physiological aids, not of the treatment of disease. The latter may justify any risk.

Considerations on very similar lines apply to the use of electricity. The man who deems himself fully acquainted with the electrical laws of muscle, nerve, vascular, and other tissues is most wofully mistaken. The body scheme embraces subtleties and intricacies which transcend our poor catalogue of certitudes. Let us help the failing powers, but to do this effectually we must give that which most closely approximates to the body tissue content, and we must give it by such channel as shall allow the body to exercise its selecting, its elaborating, its distributing powers. If we are not carried away by unpardonable egoism we shall be satisfied with the gentle electrification of the body by a mild current, given upon broad areas. The distribution—that is, the utilisation of the current—will be carried out by unerring centres that govern the electric economy of the organism.

Although the old teaching that plants alone can assimilate salts has been proved wrong, the fact remains that organic compounds of mineral salts are physiologically far more useful than are inorganic forms. Iron is an example. A constant effect of iron on albumen is coagulation. That is bound to result from taking any form of iron. But the action of iron saturated with albumen upon any further quantity of albumen is practically nil. It is better that such coagulation should take place outside the body than on the surface or within the substance of the absorbent membrane.

Phosphorus is a material with little solubility in water. In hot oil, however, it dissolves perfectly. Such phosphorated oil when added to cold oil, as olive, will dilute the phosphorus solution to any extent desired. If this be

given, absorption without local irritation is ensured, and, theoretically, the distribution of the phosphorus throughout the blood must be helped.

When Hodge chews a piece of bacon and washes it down with beer, he does not look as if engaged on anything very scientific. Yet the processes are initial to a series of elaborations that as yet the mind of Science with a capital S has not exhausted.

Let Science pooh-pooh the bacon and the beer and Hodge's oral gateway and feed him with dissolved tabloids of synthetic products and Hodge will fade, as prettier things than he fade.

The body is a microcosm, but it does not follow that the body contains every form of matter found outside. What is not natural to the body is physically evil. Radium is an instance. Its therapeutic power may be anything, from the miraculous to the farcical; I am not concerned with either. But I do know that physiologically not a scintilla of evidence has ever been offered to show that radium ever obtains in the body, or that its application aids the general metabolism. The case of the cathode rays is very different. Here we touch a form of force which must obtain, at least theoretically, wherever there is a natural cathode. But this may be said—at present we do not know the cathode potential of living tissue. All that we do know is that the application of the *x*-rays to healthy living tissue has either done nothing at all or has injured. Experiments in the future may establish the fact that physiological treatment by cathode rays should resemble homœopathy in the doses being attenuated to an almost unthinkable littleness.

The triumphs of Western Science in things physical are largely the triumphs of men who have brought their speculations to the test by physical apparatus, and who have proved other points by inductive reasoning based on practical research. Eastern Science had travelled all the ground long centuries before, with its eyes shut and its attention centred upon its navel. Eastern Science never-

theless arrived at the same goal as did the Western. But Eastern Science has been intuitional and visional—the out-reaching of the intelligence to the “MUST BE”; it has never been concrete. The East is the soul, the West is the brain; the East is the dreamer, the West is the worker.

This Eastern Science tells us there is a physical force more subtle than electricity, and a substance more subtle than the other.

Possibly both fields may be opened to our research.

We do know that mind is force, and that mind is substance. We do know that mind acts on mind and on body; that it will produce sickness and make for health; but here we of the West are like little children touching curiously the levers of some engine of whose powers and construction we are ignorant. This at least we can do—trust to our engine-driver, the brain. We can be happy, and cheerful, and optimistic, and wish for good all round. It doesn’t sound much; rather trite and futile, perhaps. Yet some trite things are good to remember; and as for futility—try the opposite, my friend, and see what comes of it. Great Scott! Don’t we know that all bright and cheerful and happiness-making things smooth out lines, and aid digestion, and give a light to the eyes and strength to the limbs. Don’t we ask, “What on earth is the matter?” when bad news has made some friend grey and haggard and tremulous! The man who does not believe in the influence of mind on the body is blind to the obvious.

Between mind force and electric force there is a gap. Reason tells us that the gap is filled by an unseen something. There is an *x*-force. Its nature we can only guess at. The East has believed in it for ages. We of the West will remain sceptical until someone patents a machine for using it.

Although we are not in possession of anything approaching a means of directing metabolism as we choose, the agents at our command are many, and have power. The

reason for poverty of result is the neglect of co-ordinating their use.

There was an old lady who, on being told that a tortoise lived four hundred years, expressed doubt, and bought one to see if the assertion was true. It is very possible that a similar problematical difficulty may present itself to the mind of the reader who contemplates the retardation of senile decay. How can it be practicable to test this or that on the longevity of an individual when one's own life is so brief?

It is not practicable if we contemplate dealing with the entire life period. The case becomes different if we take any considerable fraction of such a period, say five years—a fraction which normally makes in the man or woman a difference of appearance. If, for example, we select a man of thirty-five, or better yet, a number of men at that age, and deal with them for a period of five years, our results should have a definite ratio to the potential result over a normal life period. Thus, if our man of thirty-five arrives at forty looking and feeling not more than thirty-six, or seven, then whatever in such looks and consciousness may be junior to the characters of forty will be due to slowed decay, and we may hope and expect that at fifty the decay will have been proportionately slowed. If two years are saved in every five, thirty years' of treatment should give twelve of retardation, so that at sixty-five he should have the vigour of fifty-three.

As a fact, this scheme has been followed; and, equally as a fact, the results have been more satisfactory than those stated. There are men and women nearing the mid period of the seventh decade who in vigour and appearance are junior to this by at least twenty years.

That this has been effected by a use not of all but only a few of the agents at command, and with interrupted continuity, is a hopeful augury of the success that may be looked for if every agent is employed and the treatment is continuous.

ART. VI.—*Report on Maternity and Child Welfare in Dublin County Borough.*^a By ELLA G. A. WEBB, M.D.; Honorary Medical Officer to St. Patrick's Dispensary for Women and Children and to St. Monica's and Gordon Baby Clinics, Dublin; Author of “Breast Feeding of Infants,” &c.

THERE is no doubt that while the mortality among children under one year of age is very low in Ireland as a whole, that of the City of Dublin is abnormally high, and it is an equally undeniable fact that while in all the large cities of England they have managed to reduce their infantile mortality to a very considerable extent during the last ten years, that of Dublin County Borough remains as follows:—

	Year	Infant Mortality per 1,000 Births in Dublin County Borough
	1906	150.7
(Cold wet summer) . .	1907	160.2
	1908	151.8
	1909	150.8
(Very cold wet summer) . .	1910	147.4
(Very hot summer) . .	1911	165.2
(Very cold summer) . .	1912	146.6
	1913	160.0
	1914	155.6
	1915	160.3

* Read in the Section of State Medicine on January 5, 1917, and published in the Report on the Physical Welfare of Mothers and Children, Vol. IV. (Ireland). 1917. Dublin: John Falconer.

The following brief sketch of the chief agencies connected with child welfare has been made with a view of ascertaining if possible the main causes which may account for this unsatisfactory state of things, and also in the hope of discovering among what class of children the chief loss occurs. What follows applies to Dublin City only.

Taking a general view, we are struck by the fact that although the poverty and bad housing in a large part of the city certainly tend to a high infant death-rate, on the other hand, this should be largely counteracted by the fact that, compared to other cities (Belfast, Leeds, Sheffield), Dublin is not an industrial city, and consequently many mothers, not being employed in factories, are able to remain at home and tend and nurse their children, which is a great asset.

We may start by dividing the children into two great classes—A.—Children which come under the care of the Poor Law; and B.—Those which come under the care of Voluntary Organisations.

A.—Under this heading are included :—

1. Infants born in the workhouse (generally illegitimate) who remain in the care of their mothers. These generally do very well.

2. Infants sent in on a doctor's note. These are frequently literally sent in to die, being cases of hopeless illness—such as tubercular meningitis and the like.

3. Infants which are brought to the workhouse nursery owing to the death or disappearance of the mother, or are illegitimate nurse children brought in because the mother has ceased to pay for their support. Among these the mortality appears to be appallingly high. This is in a small measure due to the fact that they are in an unsatisfactory condition when brought in, but is chiefly owing to the condition, well known in all large establishments for

infants as "hospitalisation." This condition of low vitality and susceptibility to infection is due to the fact that it does not suit any infant to lie for many hours in a cot. It needs "mothering," and this can be had only if the staff of attendants is very large. Also, there seems to be constant infection of one child from another, chiefly in the way of epidemic diarrhoea or bronchitis. The consequence is that children brought in healthy and strong frequently succumb to one or other of these affections.

4. Infants which are left by their mothers in the care of a "nurse," who is supposed to report herself to the Board of Guardians within forty-eight hours of the time she receives the child.

These children are generally illegitimate, and are placed with the "nurse" either by the mother herself or by some of the philanthropic societies which take up rescue work.

The flaws in this arrangement are numerous. In the first place, the nurse rarely reports within the specified time, and even if she does, it is very difficult then to take the child from her, even if she appears to be ignorant and dirty, or unsatisfactory in any other way. These infants are inspected by ladies appointed by the Board of Guardians, but the number of cases to each inspector is very large, their powers are very limited, and they are given no special training in infant care before taking up their duties. In fact, unless a case of flagrant neglect or cruelty occurs, their recommendation to remove an infant from a "nurse" is rarely likely to be adopted.

5. Infants living with their mothers who are widows and recipients of outdoor relief. There is no inspection of these children, and the relief given is that which is usual for adults—viz., bread and meat, milk never being given without a doctor's orders in case of illness, even though there may be young children in the family.

B.—VOLUNTARY ORGANISATIONS.

1. *Hospitals.*

	Total Beds	No. of Beds available for Children
Adelaide	150	24
Children's, Temple Street	86	86
Drumcondra	38	4
Jervis Street	120	9
Sir Patrick Dun's	125	8
Mater	364	20
Meath	160	16
Mercer's	100	7
*National Children's	43	43
Richmond, Whitworth and Hardwicke	Children's Ward is now used for soldiers	79
Orthopædic		
Royal City of Dublin	150	19
St. Vincent's	150	12
Steevens'	250	14
City Skin and Cancer	22	3
Royal Victoria Eye and Ear	—	—

* A great deal of the accommodation at present is taken up by Wounded Soldiers.

2. *Infant Aid Society.*—This is an organisation working under the Sanitary Committee of the Corporation, consisting of over 100 voluntary workers, who devote their leisure in visiting cases sent to them by the sanitary inspectors, who receive them in accordance with the Early Notification of Births Act. These visitors undergo a short

course of instruction before receiving the badge which authorises them to work. The Society collects a certain amount of money, which is spent largely on milk and food, and orders for these can be distributed by the visitors as well as instruction and advice given to the mothers. By means of the recent grant four whole-time appointments have just been made by the Society—viz., one fully-trained nurse, with special experience of infant mortality work in England, at £100 a year; and three other fully-trained nurses at £60 a year. They will assist and direct the work of the voluntary visitors.

3. "*Babies' Clubs*" or *Infant Consultations*.—These were started by, and work under, the Women's National Health Association. They are at present eight in number : 1. Gordon Club, 48 The Coombe; open each Thursday. 2. St. Monica's Club, Usher's Quay; open Tuesdays and Fridays. 3. St. Patrick's Club, 30 Golden Lane; open Tuesday and Friday afternoons for babies, Wednesday mornings for mothers (ante-natal cliniques), Saturday mornings, cliniques for school children. 4. St. Andrew's Club, Lower Mount Street; open every Wednesday. 5. Slainte Club, 28 Arran Quay; open every day; doctor on Thursdays. 6. St. Anthony's Club, 34 Granby Lane, off Rutland Square; open every Thursday. 7. Sibail Club, 37 North Great George's Street; open every day; doctor on Thursdays. 8. St. Laurence O'Toole's Club, Seville Place; open every Wednesday.

In all these clubs the general plan is the same, and consists in weekly or fortnightly visits from the doctor, who holds a sort of clinique, giving instruction and advice, records being kept of all cases. This is supplemented by visits from the nurse attached to each club, who sees that the doctor's instructions are carried out, &c. There are also classes for sewing, cooking, home hygiene, first aid, and home nursing, &c.; boot clubs, coal funds, savings

banks, &c., are started, and the women find the afternoon spent at the club, with the tea and social intercourse, a pleasant change from their home life. Arrangements are now being made for the nurse to live on the club premises, so as to be at hand to help any mother in a case of emergency. The sum received by the clubs from the recent grant has been expended on the nurses' salaries alone, the rest of the funds being raised by the local committees of ladies. As more and more of the home visiting is taken over by the Infant Aid Society, the club nurse can devote herself more to the inner working of the club, keeping of records, visiting children over one year old, and looking up expectant mothers.

Other agencies are :—

4. *Care of Invalid Children in their Own Homes.*—This branch of work provides special food, &c., under orders from the hospital where the child has been. Massage, surgical appliances, &c., are also obtained, as far as funds allow, for cases which need them. It also puts the case in touch with suitable philanthropic agencies.

5. *Dublin Samaritan Committee.*—Provides food and clothing for tubercular patients in their own homes. Children are included in this work. They also separate tubercular members of the family by giving beds, bedding, &c.

6. *School Children's Dental Cliniques.*—Half the expense of these dental cliniques is defrayed by the National Board of Education and half by the Women's National Health Association. The cliniques are usually held in the premises of the babies' clubs. They are three in number; and are at St. Monica's Club, Gordon Club, and St. Patrick's Club.

7. *Playgrounds.*—The following playgrounds or open spaces exist in the city :—(1) St. Mary's, in Mary Street; Christchurch Gardens; St. Audoen's, Cornmarket; St. Andrew's, Cook Street; St. Michan's, Halston Street;

Hill Street Playground; Fairview. These are owned by the Corporation. (2) St. Monica's, St. Augustine Street; Gardening Ground, Constitution Hill; Playground, Constitution Hill. These are owned by the Women's National Health Association, and are not merely open spaces, but places where the children are looked after. A nurse attends in the morning to mind the little ones, and in two of them a doctor also attends, thus getting into touch with many sick children who would otherwise escape notice. (3) Tenter's Lane; Brabazon Playground, Pimlico; Maitland Playground, New Row. These are owned by the Earl of Meath. (4) Halliday Road, Aughrim Street, owned by the Dublin Artisans' Dwellings Co., Ltd.; and (5) the Iveagh Play Centre, Bull Alley, owned by Lord Iveagh. This is an indoor or covered centre, very well organised with games, kindergarten plays, and Swedish drill for the children.

8. *Inexpensive Dining Rooms.*—There are several of these in the city, notably those at Meath Street, Denzille Lane, Seville Place, Gardiner Street, the Mendicity Institute; but these are not in any way connected specially with infantile mortality work.

9. *Day Nurseries.*—These exist in various parts of the city, but they are not sufficiently numerous, neither are they superintended by people with any expert knowledge. The usual plan is that a kindly woman or a committee of a philanthropic society opens a crèche, where babies can be left for a small charge. The mother is generally supposed to provide the food for the day. Many of the crèches are not open early enough to be of use to women going to work at 6 or 8 o'clock, consequently many babies are left in charge of unskilled persons or young children. The best known are Meath Street, Gardiner Street, Power's Court, and Blackhall Place.

10. *Convalescent Homes.*—Cheeverstown; under the

Jubilee Nurses. Cappagh—Convalescent Home for Temple Street Children's Hospital; thirty beds. Sutton Preventorium—For non-tubercular patients. Skerries—A home for Protestant children, supported by the George's Hall Mission. Kingstown Cottage Home—For Protestant children who are orphans or whose parents are in temporary difficulties.

11. *Fresh Air Funds*.—Pearson's Fresh Air Fund sends children to homes in the country for a fortnight; non-sectarian. Country Air Association; Protestant. Fresh Air Association.

12. *Children's Clothing Society*.—Provides clothing for the very poor under the inspection of the police.

13. *National Society for the Prevention of Cruelty to Children*.—This society is too well known to need any explanatory comments on its work, and its help can always be relied on to enforce the orders of a doctor or nurse when the mother wilfully neglects to obey them.

RECOMMENDATIONS.

The fact that most of these organisations have existed for a couple of years at least and have not had any effect at all on the figures in the mortality returns tends to show that something is lacking.

The following appear to be the chief points in which a great improvement could be effected, taking them in the order they appear in the foregoing report:—

A.—*Cases under the Board of Guardians.*

(3) and (4). It is most important that "nurses" should be obliged to register and obtain a licence or certificate of fitness before they could receive any child to care. Such licence only to be given after inspection and searching inquiry by the lady inspector or other skilled person: The woman to be liable to have her licence removed at any time should the inspector think fit.

For the present it should be urged on all philanthropic societies connected with rescue work to exercise much greater vigilance with regard to the women to whom they give infants. That this is not done is shown by the fact that a case is recorded in which six babies in succession were given to one woman to nurse although each in turn had died.

It should also be made illegal to receive a lump sum with an illegitimate child. The money should be paid weekly, and only after inspection by the inspector, health visitor, or competent person from a philanthropic society.

The staff of the workhouse nurseries should be increased, even if only by pauper inmates, who would tend and care the babies. Isolation, segregation and disinfection should be practised much more than at present—the babies kept more in the open air, in open shelters, &c.—and dispensary doctors, clergy, &c., should be warned to avoid as much as possible sending healthy infants in amongst sick ones, if any other possible arrangement can be made for having them looked after.

(5) In the case of women receiving outdoor relief, those with young children should always receive a certain amount of milk and oatmeal instead of some of the bread and meat.

B.—Voluntary Organisations.

(1) *Hospitals.*—Although it appears from the above list that over 300 beds are available for children, it must be remembered that these are mostly for surgical cases, often of older children, and that the ordinary arrangements of a general hospital do not admit of the care of young infants. Also in the dispensaries connected with these hospitals, often crowded as they are with adult patients, there is little time to go into elaborate instructions or infant feeding. Three or four set aside one special day in the week for

infant work, but that is, of course, quite inadequate to the needs of a large city. What is badly needed is a large central infants' clinic, with a small number of beds for exceptional cases, to which difficult cases could be sent from the health visitors and from the babies' clubs. This would also supply another great want—namely, a centre where academic instruction in the subject could be given to medical students and all the nurses and workers engaged at this particular work. Judging from similar places of this kind in London, &c., many ladies, domestic nurses, school teachers, &c., would be glad to have a chance of attending such classes, and their fees would materially help in paying the expenses of upkeep.

It is at present much to be regretted that the Medical Schools give no particular course of instruction on this subject.

(2) and (3). With regard to the Infant Aid Health Visitors and the Babies' Clubs, what is most needed is better training of the workers, and more co-operation between the two organisations. Up to the present the visitors have only received a short course of lectures touching the merest outlines of the subject. These should be supplemented, and a considerable amount of practical work included. All visitors should instruct any young or ignorant mothers to visit the clubs, and the clubs should communicate with the visitors regarding cases which cease to attend, or which are in need of help or supervision.

(9) Day nurseries should be more numerous and better equipped, and should all be inspected frequently by trained and competent health visitors or nurses, who would give instruction as to the correct feeding of each child, and direct which cases should be brought to the doctor. The doctor could either visit at the crèche or see the infants at the nearest baby club.

(10) With regard to ante-natal work, which is of such

great importance, much help might be given by (1) the midwives when engaged by expectant mothers to attend to them, and (2) by the Insurance Societies, if, when a woman applies for maternity benefit during the last months of pregnancy, they could put her in touch with some of the agencies which could help her, and impress on her the necessity of so doing. The maternity benefit itself is often spent in ways which benefit neither mother nor child.

(11) Another point which should not be lost sight of is the fact that the present lack in Ireland of settlement law tends very largely to swell the numbers of illegitimate children who die in Dublin. There is no doubt that most girls in the country who "get into trouble" come up to Dublin and put their illegitimate infants out to nurse in the city, where they usually drift into the charge of the Poor Law Guardians. The chances for the infant would be infinitely greater if it was sent back to the country district to which it belonged, or if there was some large institution in which the unmarried mothers were kept and allowed to retain the charge of their infants. There is one such institution, but it is very small, and only for Protestant girls.

A great need is that of a reliable milk supply. Until there is a supply of milk of known good quality and low bacterial content obtainable at a moderate price and under constant supervision and inspection by the Public Health Authority, there is bound to be a large amount of epidemic diarrhoea and surgical tuberculosis in the city. In fact, there are few reforms which would probably alter the death-rate as much as a milk supply of this kind properly administered by the various agencies already mentioned—such as the health visitors, babies' clubs, &c.

(12) The dispensary doctors and doctors working in city districts should be put in closer touch with the various agencies for child welfare work. Although most of them

agree that the high infantile death-rate is due to the ignorance of the mothers on questions of hygiene and infant care, they do not know to whom to turn to remedy these defects. If a nurse or health visitor could attend at the dispensary and follow up these cases much good might be done.

Lastly, it should be urged that some academic recognition of the great problem should be given in the medical schools. In neither the schools nor hospitals is the subject of infant care and treatment made a special subject. Cliniques are given in the lying-in hospitals, but the infants there are generally healthy, new-born infants in good surroundings before they have reached the miserable condition in which they are found later on.

The treatment of infantile dietetic diseases is quite as specialised and important a subject as ophthalmology or hygiene, and should be treated as such, for it is only by a combination of instruction and co-operation that any lasting good will be achieved.

ART. VII.—*Melæna and Hæmatemesis Neonatorum.*^a By BETHEL SOLOMONS, M.D., F.R.C.P.I.; Gynæcologist to Mercer's Hospital, Dublin.

IN this very fatal condition the details of a successful treatment are useful, and for that reason I submit the notes of a case which occurred in my practice.

The mother was a young primipara, and delivered herself of a full-term female—weight, $8\frac{1}{4}$ lbs.; length, 22 inches—after 7 hours' labour, on March 16th, at 8 p.m. The family history was good on both paternal and maternal sides.

I saw the child on March 17th in the morning, and everything was normal. I then left town for 24 hours, and did not visit the case again until the following evening.

^a Read before the Section of Obstetrics in the Royal Academy of Medicine in Ireland on Friday, April 20, 1917.

On March 17, at 5.30 p.m., the baby vomited a little brown fluid. For the next three hours she was very restless. At 9.30 she passed a large tarry motion with streaks of blood through it; at 10.15 she vomited about 3 ounces of red blood. From 10.30 until 11.0 she was very collapsed, with lips and fingers cyanosed; at 11.30 she passed a very large bloody offensive motion. She seemed in pain, and did not sleep more than ten minutes at a time. On the morning of the 18th, as I was away, Dr. Fitzgibbon kindly saw the patient for me. At 9 a.m. she had a very large fluid motion with blood through it. At mid-day, horse serum, 2 c.cs., was injected into the loin. Very shortly after this there was a motion containing a large quantity of blood. Some blood was vomited. I saw her at 5.50 p.m., and soon after this there was a large stool. At 10 a.m., horse serum, 4 c.cs. was injected. On this day she had four doses of a mixture containing in each dose one grain of calcium lactate, and one minim of a one in a thousand solution of adrenalin chloride. She had a restless night, waking every hour.

March 19th.—At 3.15 a.m. and 4 p.m. large tarry motions were passed. She looked better, and I decided to wait before giving any more horse serum. However, after the first tarry stool I injected 5 c.cs. hypodermically. The adrenalin mixture was administered 12 times. She had a good night, and slept well.

March 20th.—Slight melæna twice—at 3 a.m. and 4 p.m. At 4.45 p.m. 5 c.cs. of horse serum hypodermically, 12 doses of the mixture in the 24 hours. She was very restless, and evidently in great pain, which was probably due to flatus.

March 21st.—In much pain. At 2 a.m. a small rubber catheter was passed per rectum, and a large quantity of flatus came away. The chill was taken off the water, which until this day had been given dead cold. There was one small tarry stool.

March 22nd.—At 2.20 a.m. the infant was very restless, and inclined to cyanosis, and looked as though about to die. Horse serum, 5 c.cs. was given by mouth; this was re-

peated at 9.30 a.m. She seemed weak through the day, and I decided to give her something stronger than water. I therefore ordered albumin water (one egg to the pint of water) every two hours, which was the first " food " given. This was the sixth day of the illness and the seventh since birth. The mixture was given eight times in the day.

March 23rd.—Albumen water 2 ounces, every two hours. Mixture, eight times. Horse serum, 5 c.cs., twice in the 24 hours by mouth. Two motions; improved, but still rather tarry. One pound weight lost in the week.

March 24th.—Albumen water during the night. At 8.30 a.m. the first slightly yellow motion. At 11 a.m., rennet whey 2 ounces; serum, 5 c.cs. by mouth twice. Two more yellow motions. Rennet whey through the day. The mixture three times.

March 25th.—The mother's breasts had been kept pumped in order to continue secretion, and on this day the baby had 2 drachms of breast milk with rennet whey. Serum, 5 c.cs. by mouth; mixture three times in the day; two motions.

March 26th.—Whey and breast milk; mixture three times daily.

March 27th.—Breast feeding only.

After this the baby gradually improved, and is quite healthy to-day. Many theories have been brought forward to account for intestinal bleeding in the new-born, and I do not intend to enter into a discussion of them here. I believe it possible that one of the unknown toxæmias of pregnancy which circulate in the mother is carried to the child; whether causing a premature gastric secretion, as suggested by Dr. Crawford, or in what other way the ulceration is caused, it is impossible with our present knowledge to state. The very large *offensive* motion which was passed on the first day of the illness was strong evidence for a toxæmic theory. In *post-mortems* on eclamptic patients haemorrhages have been found in various intra-abdominal sites. When eclamptic fits occur in infants, when scopolamine can be demonstrated in the urine of the new-born, why should not gastro-intestinal haemorrhage

be caused by a toxæmia carried from the mother to the child while still *in utero*? The starvation treatment, which is so successful in cases of maternal toxæmia, is extraordinarily successful in a case such as the one described.

The following are the points which struck me most forcibly :—

1. That the child was female : the condition being supposedly more common in males.
2. The extreme vitality of the child and the amount of blood which she could lose and still live.
3. The fact that ice cold water, which is recommended in these cases, causes great pain ; while, when the chill is removed, haemorrhage does not recommence, and there is no more pain.
4. That starvation can be sustained for so many days (six in my case).
5. That the cure in this case was effected by good nursing, warmth, quiet, water, the mixture, and the injection of serum. That the baby disimproved when the serum was temporarily stopped, and improved when administered again. That large doses of serum give better results than small, and that, when given hypodermically or by mouth, the result seems to be the same. That while no anaphylaxis was noticeable in my case, the physician should always be ready for this phenomenon, for which the best treatment is pituitary extract in small doses.

The serum used was B. and W. Normal Serum, No. 1.

TUBERCULOUS KINE.

“THE report of the United States Bureau of Animal Industry, that between 20 and 30 per cent. of the dairy cattle in the States are tuberculous, would indicate that there is opportunity for a widespread infection from this source. That such does not occur must be attributed to the fact that it is only when there is disease of the udder or active ulceration of the intestinal or genito-urinal tract that the purity of the milk is endangered.”—Dr. Clifton Moor, *Southern Medical Journal*, April, 1917.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

RECENT REPORTS ON CHILD WELFARE AND MORTALITY.

1. *Forty-fifth Annual Report of the Local Government Board, 1915-16. Supplement in Continuance of the Report of the Medical Officer of the Board for 1915-16, containing a Report on Child Mortality at Ages 0-5, in England and Wales.* London : H. M. Stationery Office. 1916. Pp. 116.
2. *The Carnegie United Kingdom Trust. Report on the Physical Welfare of Mothers and Children.* Vol. IV. Ireland. By. E. COEY BIGGER, M.D.; Medical Commissioner of the Local Government Board for Ireland; Crown Representative for Ireland on the General Medical Council; Member of the Vice-Regal Commission on Poor Law Reform (1903-1906). Dublin : John Falconer. 1917. Pp. xi + 213.
1. THIS Report, by Sir Arthur Newsholme, K.C.B., the distinguished Medical Officer of the English Local Government Board, is an important contribution to the literature of State Medicine in the United Kingdom. It is to be regarded as supplementing the information and the inferences as to practical preventive measures set out in four preceding reports as to maternity, infancy, and childhood, presented to Parliament in the Sessions of 1910, 1913, 1914, and 1914-1916, respectively.

The facts summarised in the present Report embody the average experience of 29 metropolitan boroughs and 245 other urban areas in England and Wales during the four

years, 1911-1914. These facts may be taken as a guide in showing where and to some extent how child life and health may be saved at the present time and in coming years. The world-wide war has emphasised and has made evident to all the importance of this saving.

In the four years, 1911-1914, the deaths of 2,036,466 persons were registered in England and Wales. Of this number, 575,078, or 28.2 per cent., occurred during the first five years after birth. There is no complete record of all the deaths occurring *in utero*, though since September 1st, 1915, all stillbirths occurring after the twenty-eighth week of pregnancy have been made compulsorily notifiable. These amount to about 3 per cent. of the total live births. The Medical Officer thinks that it is not unlikely that the total intrauterine deaths during the entire period of pregnancy are four times this number, and are equal to the total deaths in the first year after birth.

Of the total deaths occurring from 1911 to 1914, among children under five years old who were born alive, 190,120 occurred after the end of the first year of life. This Report is concerned in the first place with ascertaining the relative incidence in each of the five years of life, 0-5, of child mortality, and of the chief causes of death, considered in relation to locality and to any factors that may guide preventive and curative measures.

It is well known that the tenure of human life is much feebler in infancy and in old age than in the intervening years of life. The great reduction in infant mortality which has taken place in recent years has shown that the uncertain hold on life in infancy is in part avoidable.

The largest number of deaths occur in the first year after birth, this number being double the number occurring in the next four years of life combined. Sir Arthur Newsholme believes that there are great possibilities of life-saving at each of these ages. One chief object of Preventive Medicine and Public Health is to transfer the greater part of the deaths now occurring in infancy and childhood to the ages of seventy and upwards. Consider-

able transfer has already taken place. The successive decennial summaries of Vital Statistics, issued by the Registrar-General for England and Wales, show that the improvement in prospect of life has extended far into adult life, and there is no reason to doubt that it will extend further towards old age as the laws of health become better known and more generally followed.

Interspersed through this most valuable Report are several illustrative diagrams and maps, and an appendix contains a series of statistical tables, wherein are embodied the facts on which the Report is based.

In his introductory letter to the Rt. Hon. Lord Rhondda, then President of the English Local Government Board, and now Food Controller, Sir Arthur Newsholme points out that the maps in the Report give a general view of the position in the largest centres of population. The one outstanding fact is that the centres of excessive child mortality are those in which the chief industries of the country are carried on. That this association in the main is not inevitable is shown by the great reduction in child mortality already secured in these centres, and by the great variations in present child mortality in towns having the same or closely allied industries. Sir Arthur thinks that the working class mother is too often accused of ignorance, which it is furthermore assumed is much less prevalent among well-to-do mothers. This, in Sir Arthur's opinion—and we agree with him—is a facile and unbalanced explanation of the excessive child mortality among the working classes. At page 64 of the Report, in Section XI., on circumstances of environment favouring excessive child mortality, in discussing the question of maternal ignorance, he remarks : “There is little reason to believe that the average ignorance in matters of health of the working-class mother is much greater than that of mothers in other classes of society. Furthermore, it would appear that *working-class mothers give their infants the supremely important initial start of breast feeding in a larger proportion of cases than do the mothers in other stations of*

life.'' We have ventured to use the emphasis of italics in this quotation. Sir Arthur enumerates the advantages which the mother in comfortable circumstances is able to ensure for her infant—advantages which the infant of the poorer mother often cannot obtain. He continues : “ There is no reason to assume that the one mother is more ignorant than the other. But the ignorance of the working-class mother is dangerous, because it is associated with relative social helplessness. To remedy this what is needed is that the environment of the infant of the poor should be levelled up towards that of the infant of the well-to-do, and that medical advice and nursing assistance should be made available for the poor as promptly as it is for persons of higher social status.”

The chief causes of death during the first year after birth are considered in Section II. of the Report. Of the total deaths in infancy, 6.4 per cent. are returned as due to measles, whooping-cough, diphtheria, and scarlet fever, and 2.9 per cent. to tuberculosis. Thus, over 9 per cent. of the total mortality in infancy can be ascribed to diseases well recognised as infectious, and, therefore, preventable.

In addition, 18.4 per cent. of the total deaths are caused by diarrhoeal diseases, which are commonly due to food poisoning during hot weather. Meningitis, which is responsible for 1.3 per cent. of infantile deaths, is due, except in the more rare instances in which it is primarily traumatic, to invasion of the brain by the micro-organisms of pneumonia, or cerebro-spinal fever, or tuberculosis, or by other pathogenic microbes.

Bronchitis and pneumonia, which together produce 16.7 per cent. of the total infantile mortality, are both due to infection, commonly favoured by uncleanliness and by indiscretions in clothing, or by foulness of the air of dwelling-rooms.

“ Congenital debility ” is credited with 23.0 per cent. of the total mortality in the whole age-period of 0-5 years, and with 34.1 per cent. of the infantile mortality (0-1 year). The causation of the conditions classed under this heading

is complex. A considerable share of the deaths so classed is caused by congenital syphilis.

It is thus certain from the above figures that more than half of infant mortality is due to infection *ab extra*. "How much of this infection could be prevented?" asks Sir Arthur Newsholme. The infections to which bronchitis and pneumonia are due are often secondary to acute infectious diseases, especially to measles and whooping-cough, and are controllable to the extent to which these diseases come under control. In a considerable proportion of cases "bronchitis" and "pneumonia" imply tuberculosis, and the more complete execution of administrative measures for the prevention of this disease would incidentally reduce respiratory diseases in infants. In other cases fatal bronchitis or pneumonia in infants is due to infection from relatives suffering from "ordinary colds," and the prevention of infection from such a source involves a higher standard of personal precautions than is at present maintained in most families. This standard would not be beyond reach were the importance of simple precautions against the conveyance of catarrhal infection more generally realised.

The means for diminishing diarrhoeal diseases were discussed in earlier Reports of this series, and already great improvement is being experienced in regard to them.

With the extension of arrangements for securing increased care of the mother during pregnancy and in child-birth, much further improvement in the death-rate even in the first month after birth may be expected.

The most notable and valuable portion of this truly admirable Report is undoubtedly Section XIII., which contains a summary of present and future activities in Maternity and Child Welfare Work on the part of local authorities and others which would lead to the conservation of the life and health of mothers and their young children.

Sir Arthur Newsholme divides such activities into four groups:—1. Housing; 2. Intra-domiciliary and Extra-

domiciliary Sanitation; 3. Food Supplies; 4. Medical Assistance, including Nursing. Under the last heading he gives full details, as it is the part of maternity and child-welfare work which in the past has received least attention, and as it is the part of this work in which under present circumstances there are the greatest possibilities of saving life and of preventing illness and disablement. He enumerates the various forms of public medical and nursing work in connection with maternity and child welfare as follows :—I. Pre-Maternity Work; II. Still-births and Abortions; III. Childbirth; IV. The Lying-in Period: The Mother; V. The Lying-in Period: The Infant; VI. The Nursing Mother; VII. The Infant and Child to the Age of 5; VIII. The Supervision of Illegitimate Children, &c.; IX. Relation to General Sanitary Work; X. Relation to Educational Work; XI. Tuberculosis; XII. Venereal Diseases; XIII. Measles; XIV. Whooping-Cough; XV. Diarrhoeal Diseases.

In the foregoing analysis and synopsis of this important, suggestive and encouraging Report we have endeavoured to place before our readers some of its salient features. The Report itself is almost beyond and above criticism. One could have wished, however, that more stress should have been laid on the evil influence of child welfare of habits of debauchery and intemperance on the part of the male parent. The war against intemperance has been waged through many years; but the combat with venereal diseases is beginning, and at long last public opinion is awaking to recognise the ruin they carry in their train.

2. THE genesis of this valuable contribution to the literature of State Medicine is set forth in a Prefatory Note signed "A. L. Hetherington, Secretary, Carnegie United Kingdom Trust," and dated "April, 1917."

The present is the fourth of a series of comprehensive Reports on the existing provision for promoting the physical welfare of mothers and young children.

The Carnegie United Kingdom Trustees, at whose

instance these Reports have been written, are of opinion—and rightly so—that the rate of infantile mortality, with its predominant causes, and the health supervision of children from infancy to school age, are among the most important questions of the present day relating to the well-being of the people.

The Reports have been compiled by E. W. Hope, Esq., M.D., D.Sc., Medical Officer of Health for Liverpool, and by Miss Janet M. Campbell, M.D., M.S., one of the Senior Medical Officers of the Board of Education, in respect of England and Wales; by W. Leslie Mackenzie, Esq., M.D., LL.D., F.R.C.P.E., F.R.S.E., Medical Member of the Local Government Board for Scotland, so far as Scotland is concerned; and by E. Coey Bigger, Esq., M.D., M.Ch., Medical Commissioner of the Local Government Board for Ireland, in respect of Ireland.

It is the fourth and last of these Reports which lies before us, and which naturally possesses the greatest interest for us who live in Ireland and love our native land.

To the compilation of such a Report Dr. Coey Bigger brings exceptional qualifications—such as years of training in Public Health work, a vast personal experience, and an intimate knowledge of the needs of the population of Ireland in relation to hygiene in the broadest sense of the term. But, above all, throughout the Report there runs a silken cord of loving sympathy which compels the attention of the most casual reader to the great cause which is advocated in its pages. In illustration of what we mean to convey we may quote the author's graphic and touching description of the abject helplessness of infancy. It will be found at page 3, as follows:—

“ Infancy.

“ To understand the risks that an infant runs we must try to examine its pre-natal conditions, and the stages through which it passes after birth. A baby coming into the world finds itself in very strange and uncongenial surroundings. Before birth it was kept at a constant tem-

perature, and was protected from injuries by its mother's body. It was nourished by certain substances exactly suited to its need, conveyed to it by its mother's blood. Oxygen was brought to it by the same medium. It had to fight no disease-bearing organisms except those which, but rarely, were circulating in its mother's body. So long as the mother was free from serious disease, had sufficient and suitable food, and did not exert herself unduly, the infant continued to live its dependent existence, continued to grow larger and stronger, safe and protected. But from the moment when the mother felt the first symptoms of her confinement the affairs of the infant changed, and when born it found itself cold and choking in a new world. Its last link with its mother's body was broken and it was free—but what a freedom! Now it had to breathe for itself, draw cold, often unclean and vitiated, air into those untried lungs. Food no longer came to its body unconsciously, it had to be sought for, taken into the mouth, swallowed and digested, and digestion is a complicated process. Sometimes the food was not what it should be, and instead of being digested it caused irritation and pain, and so had to be expelled rapidly. The infant's body, unaccustomed to self-defence, had to wage an incessant warfare against disease germs of various kinds, against cold and damp, against injury and against the carelessness and ignorance of those who, although its allies, did not know how to render the required assistance. No wonder the unequal struggle was often abandoned, and the child became one of the thousands who died 'under the age of twelve months.' ''

The Report is divided into the following sections: Infant Mortality (pages 4 to 26); Factors in the causation of deaths of Infants and Children (pages 26 to 57); Legislation which tends directly or indirectly towards Infant, Child, and Maternal Welfare (pages 57 to 76); Nursing of the Sick Poor in their Homes (pages 76 to 81); General Proposals (pages 81 to 98); General Outlines of Maternal, Infant, and Child Welfare Schemes for the County

Boroughs (pages 98 to 103), and for other Towns and Rural Districts (pages 103 and 104); Summary of the principal Recommendations (pages 104 to 107); and Conclusion (pages 107 and 108).

Then follow four special Reports by four "Medical Women." "They are," writes Dr. Bigger in his Preface, "the foremost workers on behalf of the infants and children in this country, and know by their practical work the conditions which prevail at present. Dr. Ella Webb describes the work which is being done in Dublin, Dr. Marion Andrews in Belfast, and Dr. Alice Barry in Cork." Dr. Prudence E. Gaffikin, Honorary Medical Officer of the Women's National Health Association, presents a short Memorandum on Maternity and Child Welfare in Ireland (pages 150 to 153), but—to Dr. Coey Bigger's regret—she was unable to deal more fully with the subject owing to taking up military duty in Malta.

These clear, common-sense, practical Reports should be widely read by all who have at heart the welfare of the race. One of them—that by Dr. Ella Webb—is republished in the present number of this Journal.

At page 104 of the parent Report, Dr. Coey Bigger summarises the principal recommendations made by him with the view of ensuring maternal and childhood welfare. Of these, the first is: "Registration of Midwives on the lines embodied in the Midwives Act, 1902, should be extended to Ireland, and a Central Midwives' Board Established." In regard to this much-needed reform, pressing representations have been made to the Irish Government through several years by various public bodies and many private individuals interested in the true welfare of Ireland. It is an open secret that a Midwives' Bill for this country has been drafted long since, but for some unaccountable reason it has been pigeon-holed in the Irish Office, London—a fact which reflects little credit on the constructive statesmanship of certain high Government officials.

Dr. Coey Bigger does not lose sight of the responsibility of the father in relation to procreation of healthy off-

spring. He writes (page 43):—“A father and mother, either or both of whom suffer from disease, may produce a healthy child, but the chances are against it.”

He does not consider that syphilis has a considerable influence in causing infant mortality in Ireland, for it has been shown that, apart from Dublin and Belfast, the disease is not common in this country. But alcoholism of either father or mother exerts a baneful effect on the child both directly and indirectly. He continues:—“Intemperance in Ireland is much less common than formerly, and although still all too prevalent among men, it is rare among women, especially in the country. It undoubtedly wastes the wages of the father, when he is the victim, thus depriving the children of their food and clothing, and has a bad effect upon his ‘germ cells,’ which are directly responsible for his child’s being. The connection between feeble-mindedness in the child and alcoholism in the parent may be regarded as practically proved.” (Page 44.)

The last sixty pages of the volume are occupied by an Appendix, the first part of which contains a circular letter addressed by Mr. A. R. Barlas, the Secretary of the Local Government Board, to the Town Clerk of each County Borough and to the Clerk of each Urban District Council in Ireland, on the subject of Maternity and Child Welfare in connection with the operation of the Notification of Births (Extension) Act, 1915, under which early information concerning all births in Urban Districts is required to be given to the Medical Officer of Health. In addition, the Act contains provisions enabling local authorities to make arrangements for attending to the health of expectant mothers and nursing mothers, and of children under five years of age. To that letter is appended a copy of the regulations prepared by the Local Government Board for the distribution of a Parliamentary grant of £5,000 in aid of approved schemes for Maternity and Child Welfare. Small as this grant is, a step has been taken by Parliament in the right direction—*meliora speramus.*

The remainder of the Appendix contains twenty-one statistical tables bearing on the subject of infant mortality in Ireland and its causes, both pathological and economic, as well as the means which already exist for combating that mortality. Many of those tables have been compiled by Dr. Coey Bigger's son, Dr. Joseph W. Bigger, a graduate in Arts and Medicine of the University of Dublin, and now at the University of Sheffield. To him, his father pays a graceful compliment in the preface to the Report, as well as to the Inspectors and other officials of the Local Government Board for their constant interest and help, and also to the Registrar-General for Ireland (Sir William J. Thompson, M.D.), the Assistant Registrar-General (Daniel S. Doyle, Esq., LL.B.), and Mrs. Dickie, LL.D., Insurance Commissioner—to the last-named for her notes on maternity benefit (pages 63 to 65, inclusive, of the Report).

And last, though surely not least, the author tells us that his thanks are specially due to the seven hundred and sixty Medical Officers of Health, together with a number of specialists, and the Clerks of the Unions, who willingly supplied him with much useful information.

From this recital of acknowledgments it will be seen how thorough was Dr. Bigger's inquiry and how authoritative a pronouncement on the physical welfare of mothers and children in Ireland the Carnegie United Kingdom Trust has been able to secure from the facile and sympathetic pen of the Medical Commissioner of the Irish Local Government Board. Surely, it is not too much to hope that his work—which he himself tells us was “a labour of love”—will ere long strike root downward and bear fruit upward.

The Report has been printed by Mr. John Falconer, of Dublin, who has at the same time provided for it a fitting setting, and worthily upheld the reputation for artistic printing which Dublin has so long enjoyed.

J. W. M.

WORKS ON MENTAL DISEASES AND
PSYCHOLOGY.

Owing to unforeseen circumstances, the following works hitherto have not received notice in this Journal. To Authors and Publishers alike we offer an apology for the delay which has occurred in reviewing the several volumes in question.

1. *A Text-Book of Psychiatry.* By LEONARDI BIANCHI, M.D. Translated by JAMES H. MACDONALD, M.D. London : Baillière, Tindall & Cox. Pp. xv + 904.
2. *Criminal Responsibility.* By CHARLES MERCIER. M.B., F.R.C.P. Oxford : The Clarendon Press. Pp. 232.
3. *The Interpretation of Dreams.* By PROFESSOR SIGMUND FREUD. Translated by A. A. BRILL, Ph.B., M.D. London : George Allen & Co. Pp. xiii + 510.
4. *Lectures on Clinical Psychiatry.* By DR. EMIL KRAEPELIN, Professor of Psychiatry in the University of Munich. Authorised Translation from the Second German Edition. Revised and Edited by THOMAS JOHNSTONE, M.D. Edin., M.R.C.P. Lond.; Member of the Medico-Psychological Association of Great Britain and Ireland. Second English Edition. London : Baillière, Tindall & Cox. Demy 8vo. Pp. xviii + 352.

1. THE author of this prodigious work is widely known as a keen and experienced observer of the alienated. He does not belong to those prophets who are without honour in their own country in so much as he has attained there the position of Minister of Education.

To do full justice to the book before us is no light matter when confined to the necessarily short limits of a review. One can only point out some of its features—

all of which are founded upon a very extensive knowledge of the insane.

In the important subject of the classification of mental disease we meet here with one who is influenced to but a slight degree by classifications as devised by others; when introducing this subject he states: "We have had presented to us such a number of classifications that our faith in another is shaken beforehand."

His scheme comprises three groups dealing with:—

1. Evolutionary psycho-cerebral defects.
2. Affections of infective, autotoxic and toxic origin arising in individuals regularly evolved.
3. Affections with an organic substratum, localised or diffuse, in the central organ of mind.

The second group is further divided into two sub-groups. In the first of these there are included descriptions of acute paranoia and mental confusion. Acute paranoia is not generally accepted as a separate entity in this country, but Professor Bianchi regards it as an acute disturbance resembling sensory insanity, but being in reality an affection exclusively confined to the field of intellect, and consisting essentially in a false interpretation of real perceptions of the external world.

In the classification, no mention is made of the much-discussed dementia *præcox*, the author holding that it is merely a syndrome preceded by an hallucinatory state which should characterise the real nature of the malady.

Of pellagrous insanity there is to be found an ample description. This disease—common enough in Italy—has in recent years been said to be much more prevalent in the British Isles and America than was hitherto supposed.

The history of the neuron doctrine has been marked by much opposition from many quarters.

In weighing the arguments for and against its acceptance the author would appear to favour the latter—to the advantage of the law of continuity.

Before concluding, a word of praise is due to Dr. MacDonald for the excellence of his translation.

H. R. C. R.

2. DR. MERCIER is one of our most gifted medical writers, and, as such, one looks for much pleasure in the course of reading a work by him. In this the reader cannot be disappointed regarding Criminal Responsibility, for, apart from the natural gifts of the author, there is the additional fact that he is a distinguished medical jurist who possesses to no small extent the cogent reasoning of the legal mind.

Throughout this work he does not concern himself greatly with the law as it is, but, instead, with the law as it ought to be. Penology is not within its scope, but he endeavours to show us those whom we ought to punish.

Concerning voluntary action, the definition of Sir FitzJames Stephen meets with criticism; the author offers us a definition of his own, in which he states it to be "a movement, or arrest or suppression of movement, consciously directed to an aim or an end."

On the subject of wrong-doing he holds that "He does wrong who seeks gratification by an unprovoked act of intentional harm."

With regard to insanity he points out that the symptoms thereof are three-fold, comprising disorders of conduct, bodily function, and mind—each present in every case but not to the same degree of prominence. Of the three, he regards the disorders of conduct as being, by far, the most important as a manifestation of the alienated individual.

Disorder of mind, he holds, in many respects, to be the least important, from a symptomatic point of view.

In order to fulfil the condition of responsibility for a harmful act, the actor must will the act, intend the harm, desire primarily to obtain his own gratification. Furthermore, the act must be unprovoked, and the actor must know and appreciate the circumstances in which the act is done.

Considerable space is given to the answers of the judges to the questions set them by the House of Lords in the year 1843. These deal largely with the exact meaning that should be attached to the word "know,"

Dr. Mercier concludes his valuable work with an account of procedure and practice. In this chapter one gladly notes his experience that judges are most solicitous to give the prisoners before them the benefit of everything that can be used towards the palliation of an offence or in favour of a mitigation of a punishment.

H. R. C. R.

3. THE interpretation placed upon dreams by Professor Freud is a subject that has produced a world-wide interest and an alarming amount of discussion.

There is no doubt that the author, through his amazing industry, has shed a great deal of light upon a dark and somewhat neglected subject.

That dreams are not meaningless things—that they deal only with matters which have no importance in the mentality of the individual is now regarded by many investigators to be the case.

The Viennese school of thought has met with a great amount of hostility; this is not to be wondered at—for the nature of its deductions compel it. To inquire too closely into the significance of one's sexuality and its bearing upon everyday life, must necessarily be abhorrent to the civilised. Yet withal, we cannot fail to admit that the Freudian principles have made much headway in many countries.

Another school, that of Zurich, goes farther even than that of Vienna, for whereas the latter deals with the past, the supporters of the former look to the future, and so attempt to discover the aim of the disease.

Briefly stated, Freud regards a dream as being the fulfilment of a wish and that it represents a mental conflict between wishes many of which contain some elements from the infantile subconsciousness.

The full appreciation of their true significance is not always a matter easy to attain—for it may be disguised by the use of condensation, dramatisation and displacement—the purpose of which is to prevent the entrance of

the wish into the conscious. In order to overcome the disguise one must call to one's aid the art of psycho-analysis.

Modern thought in the British Isles is perhaps not wholly in favour of the Freudian explanation of dreams, but there cannot be any question about the impetus his work has given towards further research and interest in the subject. His theories may not be accepted in their entirety, but they cannot fail to command the closest attention.

H. R. C. R.

4. THE reputation of Professor Emil Kraepelin as an alienist is so world-wide that the task of the reviewer of his "Lectures on Clinical Psychiatry" is a light one. We may add that the translation has been so admirably accomplished that the work in its English dress defies adverse criticism. It is a pleasure to read its pages with their easy-flowing diction.

Just as this second edition of the English translation was going through the press towards the close of the year 1905, the Statistical Committee of the Medico-Psychological Association of Great Britain and Ireland published their report and new tables. Dr. Johnstone, who is himself a member of the Association, decided—as we think rightly—not to alter the classification of mental diseases which he had drawn up in accordance with the teachings of Professor Kraepelin. Had the translator done otherwise, this classical work would have lost much of its individuality.

The alterations in the second German edition, to which effect has been given in the second English edition, consist mainly in the addition of two new lectures and the substitution of more appropriate examples for some of the cases quoted in the first edition. Syphilitic and arteriosclerotic feeble-mindedness are further illustrated by some new examples. But the most important point is the addition of seven new cases to supplement the teaching regarding the insanity of degeneration.

The outstanding feature in Professor Kraepelin's work is its richness in clinical details. Every lecture contains interesting histories of cases met with in the Professor's practice. And it is not necessary to enlarge on the value of well-told clinical records. The work is, and will remain, a classic on Psychiatry.

J. W. M.

The National University of Ireland Calendar for the Year 1917. Dublin : Alex. Thom & Co. (Limited). 1917. 8vo. Pp. viii + 579.

THIS volume is on the usual lines. Reference to the varied information contained in its many pages—nearly six hundred—is made easy by a very full table of contents, which serves the purpose of an index not arranged in alphabetical order.

It is hardly necessary to do more than to record the publication of the Calendar—not, by the way, until July—and to draw attention to the fact that changes in the Courses and in the Regulations for the year 1918 are set out in detail at pages 127 to 153. This portion of the Calendar should be carefully studied by present or future students.

From a return printed on page 579, we learn that, at the Matriculation Examinations in 1916, 619 candidates passed and 305 failed. The former number includes 20 candidates already matriculated in certain Faculties. The number of students who matriculated on the results of Examinations held by outside Bodies, accepted by the Senate as equivalent to the matriculation examination of the University was 181. In addition, six candidates matriculated by passing in certain subjects at the Summer Matriculation Examination and in the remaining necessary subjects at the Senior Grade Examination of the Intermediate Education Board for Ireland.

Electro-Therapy in Gynaecology. By SAMUEL SLOAN, M.D., F.R.F.P.S.G.; Consulting Physician to the Glasgow Royal Maternity and Women's Hospital, &c. Cr. 8vo. Pp. 298+xxii. London : Wm. Heinemann. 1917.

As an exposition of Electro-therapeutics in Gynaecology this book is most useful in every way; and one who is completely ignorant of the subject, after a perusal, will have gained a knowledge which, without this aid, it would take years to accumulate. Dr. Sloan has endeavoured not to be over-enthusiastic, but in this endeavour we fear he has failed. He really believes that electro-therapy will cure or relieve most gynaecological ailments. It is well known, as the author remarks, that most medical gynaecological remedial methods have fallen into disrepute. And what are the reasons? Because they take too long in effecting a cure. Because they seldom effect a cure. Because by the time a cure is effected the woman is a nervous wreck, and her husband is less well off both in wealth and in happiness, for he has as a wife a companion who finds it difficult to speak of anything but her pelvis! How does treatment by electro-therapy differ? It differs, according to Dr. Sloan, in that it effects cures. But it is expensive, and in our opinion it must take time, and, therefore, like medical gynaecology, it has the evil tendency to make women dwell too much on their genitalia. But it is well to remember that Dr. Sloan insists that he wishes particularly to benefit *obstinate* cases of pelvic disease.

The work is divided into five parts. The first deals with electro-physics, the second with electro-medical apparatus, and the third with the principles of electro-therapeutics. The student is supposed to know all about these subjects at the end of his first year. When he is in practice let him refresh his memory with these chapters. The fourth and fifth parts are medical, the former dealing with constitutional disease—mostly functional—to which women are specially liable, and the fifth with pelvic

affections. In the appendix will be found a list of 212 obstinate cases of pelvic disease treated by electro-therapeutics.

This book fulfils a want. It is couched in good language, is well printed, and has some excellent illustrations. It should be found in the library of the up-to-date gynaecologist.

B. S.

RECENT WORKS ON MALINGERING.

1. *Malingering or the Simulation of Disease.* By A. BASSETT JONES, M.B. Lond., Deputy Coroner, North Cardiganshire; and LLEWELLYN J. LLEWELLYN, M.B. Lond., Senior Physician, Royal Mineral Water Hospital, Bath. London: William Heinemann. 1917. Large 8vo. Pp. xxiii + 708.
2. *Malingering and Feigned Sickness, with Notes on the Workmen's Compensation Act, 1906, and Compensation for Injury, including the leading cases thereon.* By SIR JOHN COLLIE, M.D., J.P.; Physician, Hospital for Paralysis and Epilepsy, Maida Vale; Medical Examiner to several Accident Insurance Companies, &c. Second Edition, revised and enlarged. London: Edward Arnold. 1917. Demy 8vo. Pp. x + 664.

IT is a melancholy commentary on human nature that two such large and elaborate works on shamming should be produced; yet it is not surprising, for the evidence goes to show that malingering is on the increase. And when we think of it, that is only natural. The various Workmen's Compensation Acts have during the past ten years or so greatly increased the value of successful simulation of disease; and now, during the past two years, the introduction of compulsory service in connection with the present war has added powerfully to the attractions of malingering.

Both the works before us are thoroughly excellent and reliable. They are quite up to date, and contain many references to the novel modes of evading military service which have emerged during the past year or two. Hence

they will be found of great value by medical men connected with the Army, as well as by those whose practice lies among the accidents of Civil Life. Both works are supplied with a good index—an indispensable requisite in a book of reference.

They are dear books—the first costs twenty-five shillings net; the second costs sixteen shillings net—but both are worth the money.

1. The book written conjointly by Drs. Jones and Llewellyn contains a very full account of its subject, and there are many references to the literature of malingering, both British and foreign. Thus the subject of the simulation of jaundice by the ingestion of picric acid has five pages devoted to it, and there are abundant references to French literature, and several urinary tests are given whereby picric or picramic acid may be discovered.

The last section of the book deals with measures for restriction of malingering. Stress is laid on the desirability of the medical examination of work people before admission to any form of employment—certainly a most desirable thing, but one which it is not likely will be widely enforced, especially when we remember that Accident Insurance Companies do not insist on any medical examination prior to insurance.

There is a chapter, 90 pages long, giving an extremely full account of Malingering in relation to Sight by Dr. Beaumont, Ophthalmic Surgeon to the Bath War Hospital. The appropriate tests are described fully and with care.

2. SIR JOHN COLLIE's work differs in one notable particular from the work to which we have just referred—namely, in that his own personality is throughout more prominent than is that of Drs. Jones and Llewellyn in their book. This is natural, for Sir John Collie has had a probably unique experience of this kind of work. He writes: "During the past eleven years I have conducted over 31,000 examinations of alleged sickness or accidents; over 10,000 of these were on behalf of the military authorities, 4,100 had a medico-legal bearing, and the remainder

were sick or injured employees of the two large corporations which I serve." So, although he quotes freely from the literature of the subject, the main value of the book is that it represents the ripe conclusions of the extraordinarily extensive experience of an able and painstaking observer. The value of the book is greatly increased, and its interest enhanced by the introduction into the text of a very large number of illustrative cases, some described briefly, but others at full length. They have been excellently chosen, and elucidate the subject admirably.

The first edition of this work was published in 1913, and was a comparatively small volume of 340 pages. This second edition is practically a new book. The number of pages has increased to 664, and the illustrations number 78, as compared with 44 in the former edition.

We have much pleasure in commending both books to the notice of all medical men who have to do with cases of possible malingering. If we must distinguish between two so excellent works, we would say that while the joint authors of the first book give a fuller account of the literature of the subject, Sir J. Collie's book gives us more of the personal observations of a physician of very wide experience, especially in the domain of State Medicine.

H. B.

PERISCOPE

THE " SANITAS " COMPANY, LIMITED.

At the Annual Meeting of the "Sanitas" Company, held at Winchester House, London, E.C., on Wednesday, June 27th, under the presidency of Mr. C. T. Kingzett, F.I.C., F.C.S. (the chairman), it was stated that notwithstanding the increased difficulties attendant upon the conduct of business under existing conditions, the total volume of trade done by the Company during the past year showed a considerable expansion, more particularly in the export branches and in the supply of disinfectants to the Government and Public and Sanitary Authorities.

PART III. MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence

WAR EMERGENCY FUND OF THE ROYAL MEDICAL BENEVOLENT FUND.

TO THE EDITOR OF THE DUBLIN JOURNAL OF MEDICAL SCIENCE.
SIR,

The time has come to make a further appeal for the War Emergency Fund.

This Fund was instituted last year to afford assistance to members of our profession who, in consequence of having joined the Army Medical Service, find themselves in temporary difficulties.

Many medical men, when called up, had to leave on very short notice, without time to make adequate provision for the continuance and maintenance of their practices during their absence. As a result, they have had to face a severe fall in income, even when supplemented by Army pay; while many expenses—such as rent, insurance, taxes, family maintenance, and education—could not be reduced. Although in a year or two after their return it may be hoped those affected will recover their position, still, in the interval, help is, and will be, necessary, and it is to meet these needs that the War Emergency Fund was established.

To be effective, the grants must be made on a liberal scale, and the fund from which they are to be drawn must be a large one. The sum obtained last year was about £4,000. This is quite inadequate, as at least £25,000 will be required, if even a small proportion of those requiring assistance is to be helped. From the wealthier members of the Medical Profession it is hoped substantial sums will be received, but

every one should feel it a duty which he owes to his less prosperous colleagues to give the most liberal donation he can afford.

At the same time the appeal is not, and ought not to be, restricted to the Medical Profession. The public, too, may be rightly called upon to bear its share, and to show, by liberal contributions, its appreciation of the special services so freely rendered by the Medical Profession to the country.

The War Emergency Fund is a special department of the Royal Medical Benevolent Fund. It is kept separate and distinct from the ordinary operations of the general fund, and is under the management of a committee specially appointed for the purpose.

Communications should be addressed to the Honorary Secretary, War Emergency Fund, 11 Chandos Street, Cavendish Square, W. 1, to whom cheques should be made payable.

We are, &c.,

SAMUEL WEST, *President.*

CHARTERS J. SYMONDS, Colonel, A.M.S.,
Honorary Treasurer.

G. NEWTON PITTS, Major, R.A.M.C. (T.).
Honorary Secretary.

LONDON, W. 1, June 8th.

COCAINE PRESCRIPTIONS.

At Leeds, on July 4, several summonses were heard against medical men and chemists for non-compliance with the Cocaine Order [issued in September, 1916]. The defendants were two medical men and three chemists. The doctors had omitted to sign cocaine prescriptions with their full names and addresses and endorse them with the words "Not to be repeated," while the chemists were charged with dispensing the prescriptions. The prescriptions related to eye-ointments and nasal sprays, and in each case they had been retained by the chemists and the requisite entries made in the cocaine register. The Magistrate agreed to the suggestion that no convictions should be recorded, and ordered defendants to pay the costs.—*The Chemist and Druggist*, July 14, 1917.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President--R. D. PUREFOY, M.D., F.R.C.S.I.

General Secretary—J. A. SCOTT, M.D., F.R.C.S.I.

SECTION OF OBSTETRICS.

President—GIBBON FITZGIBBON, M.D., F.R.C.P.I.

Sectional Secretary—BETHEL SOLOMONS, M.D., F.R.C.P.I.

THE PRESIDENT in the Chair.

Friday, May 18th, 1917.

Exhibits.

THE PRESIDENT OF THE ACADEMY showed specimens removed from two cases of ruptured tubal pregnancy.

No I.—Fallopian tube removed from a patient, aged forty-two, fourteen years married and not previously pregnant. In the abdominal ostium a mass of decolourised clot was adherent, surrounded by the tubal fimbriae, and on section showing numerous chorionic villi. The abdomen was distended with several pints of blood-stained fluid.

No. II.—A young, healthy 3-para, admitted with history of irregular menstruation and slight bleeding ; moderate pelvic hæmatocele at left side. Some days previously had fallen against a chair. Condition not serious till some hours after admission. On laparotomy the tube was found to have a rent extending nearly half its length. Tubal mole found in Douglas's space.

SIR WILLIAM SMYLY showed a specimen of sactosalpinx or dilated tube and a carious mole which he had removed from a patient in the Rotunda Hospital on 8th May.

History.—K. B., married twelve years, three children, no abortions. The last pregnancy four years ago, child dead ; last menstruation March 4th. On the 12th of April a slight hæmorrhage, which continued fifteen days. On the 27th of April she was attacked with severe pain in the hypogastrium and vulvar regions and great distress during defæcation.

Examination.—On bimanual examination the uterus was found anteposed. Douglas's pouch was distended by a hæmatocele, which extended upwards and to the right above the uterus.

Operation.—Upon opening the abdomen some free blood was met with. The left tube was about the size and shape of a banana, and was removed. The right one was fairly healthy, and was left. A large quantity of clots and a carneous mole about the size of a billiard ball were removed from Douglas's pouch and the operation was completed.

On examining the specimen afterwards, no opening through which an ovum could have escaped could be found, and it was evident that the tube removed had not been the site of the pregnancy. There was a small cavity in the right ovary, which was evidently a ruptured Graafian follicle, but most probably the ovum had been extruded from the right tube, though it showed no sign to support the idea.

DR. BETHEL SOLOMONS said it would be interesting to know how far trophoblastic action had proceeded in the second specimen described by Dr. Purefoy. This could be ascertained microscopically, and would determine to what extent trauma had partaken in causing the rupture.

THE PRESIDENT said the three specimens were particularly interesting. He thought Dr. Purefoy's second specimen illustrated an effort at the production of a tubal abortion, and that the fluid in the abdominal cavity was probably derived from the ovum, in the tube which was still patent, the condition having existed for a period of three months. Sir William Smyly's case illustrated a completed tubal abortion, and it was instructive to see how the tube from which it was probably derived could recover and become healthy and normal in appearance in the short space of fourteen days.

PULMONARY TUBERCULOSIS.

DR. J. HOWELL WAY (*Southern Medical Journal*, April, 1917), at the November meeting of the Southern Medical Association, stated that "frequent and protracted catarrhs of any portion of the respiratory tract, cough, persistent from childhood, no matter how trivial the degree, have, as a rule, for their pathological basis a tuberculous origin; and in the absence of known causes existent in the upper air passages the diagnosis of tuberculosis must in all such cases be given serious consideration."

SANITARY AND METEOROLOGICAL NOTES.

VITAL STATISTICS.

For four weeks ending Saturday, June 16, 1917.

IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended Saturday, June 16, 1917, in the Dublin Registration Area and the eighteen principal provincial Urban Districts of Ireland was 16.0 per 1,000 of the aggregate population, which for the purposes of these returns is estimated at 1,127,268. The deaths from all causes registered in the week ended Saturday, June 16, and during the period of four weeks ended on that date, respectively, were equal to the following annual rates per 1,000 of the population :—Nineteen Town Districts, 16.0 and 16.2 ; Dublin Registration Area, 17.8 and 18.7 ; Dublin City, 19.7 and 19.8 ; Belfast, 15.5 and 14.7 ; Cork, 17.7 and 16.2 ; Londonderry, 9.1 and 10.7 ; Limerick, 13.5 and 16.6 ; and Waterford, 24.7 and 16.2.

The deaths from certain epidemic diseases—namely, enteric fever, typhus, small-pox, measles, scarlet fever, whooping-cough, diphtheria, dysentery, and diarrhoeal diseases—registered in the nineteen town districts during the week ended Saturday, June 16, 1917, were equal to an annual rate of 0.9 per 1,000. Among the 117 deaths from all causes in Belfast were 1 from enteric fever, 1 from measles, 1 from diphtheria, and 4 from diarrhoeal diseases. Of the 26 deaths registered in Cork 1 was from whooping-cough. Two of the 13 deaths from all causes in Waterford were from diarrhoea and enteritis in children under 2 years. One of the 8 deaths recorded in Galway was from typhus. One of the 2 deaths in Tralee was from whooping-cough.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock and Kingstown. The population of the Area is 399,000.

In the Dublin Registration Area the births registered during the week ended June 16, 1917, amounted to 166—86 boys and 80 girls, and the deaths to 148—73 males and 75 females.

DEATHS.

The deaths registered, omitting the deaths (numbering 12) of persons admitted into public institutions from localities outside the Area represent an annual rate of mortality of 17.8 per 1,000 of the population. The rate for all deaths registered during the twenty-four weeks of 1917 was 25.2, while in the corresponding period of the preceding ten years, 1907-1916, it had been 25.1.

The 136 deaths appertaining to the Area included 3 from measles, 1 from influenza, 1 from dysentery, and 4 from diarrhoeal diseases. In the three preceding weeks deaths from measles had numbered 3, 4, and 3; deaths from influenza, 0, 1, and 0; deaths from dysentery, 0, 1 and 0; and deaths from diarrhoeal diseases, 5, 2 and 2, respectively.

Tuberculosis caused 30 deaths, as against 31, 37 and 27, respectively, in the three weeks preceding. Of the 30 deaths ascribed to tuberculosis, 20 were referred to pulmonary tuberculosis, 2 to tubercular meningitis, 3 to abdominal tuberculosis, and 5 to disseminated tuberculosis.

Five deaths were caused by cancer; 1 by simple meningitis; 9 by pneumonia (5 by broncho-pneumonia, 1 by lobar pneumonia, and 3 by pneumonia, type not distinguished); 15 by organic diseases of the heart, and 9 by bronchitis.

Three deaths were registered as having been caused by violence. One was a case of suicide, and 2 were caused by drowning.

Among deaths of infants under one year old, 4 were ascribed to convulsions, 6 to premature birth, and 3 to congenital malformations.

Thirty-nine of the deaths registered during the week appertaining to the Area were of children under 5 years of age, 27 being infants under one year, of whom 13 were under one month old. Thirty deaths of persons aged 65 or upwards were registered, including 25 deaths of persons of 70 years or upwards.

Of the 136 recorded deaths 64 occurred in hospitals and other public institutions.

STATE OF INFECTIOUS DISEASES.

The following returns of the number of cases of Infectious Diseases notified under the "Infectious Disease (Notification)

Aet, 1889," and the "Tuberculosis Prevention (Ireland) Act, 1908," have been furnished by the respective sanitary authorities:—

TABLE I.—SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area—(viz., the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock and Kingstown), and in the Cities of Belfast, Cork, Londonderry, Limerick, and Waterford, during the week ended June 16, 1917, and in each of the preceding three weeks.

A dash (—) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Measles	Rubella or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain) ^a	Enteric or Typhoid Fever	Erysipelas	Puerperal Fever	Whooping-cough	Cerebro-spinal Fever	Varicella	Pulmonary Tuberculosis	Total
City of Dublin	May 26	—	—	3	—	—	2	—	—	—	3	—	—	—	—	17	23
	June 2	—	—	4	—	—	1	—	—	—	1	—	—	—	—	22	29
	June 9	—	—	1	—	—	—	—	—	—	—	—	—	—	—	25	28
	June 16	—	—	2	—	—	1	—	—	—	1	—	—	—	—	32	40
Rathmines and Rathgar Urban District	May 26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	June 2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	3
	June 9	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	3
	June 16	—	—	1	—	—	2	—	—	—	—	—	—	—	—	—	3
Pembroke Urban District	May 26	10	—	3	—	—	—	—	—	—	—	—	3	—	—	16	16
	June 2	14	—	1	—	—	—	—	—	—	—	—	9	—	—	26	26
	June 9	8	1	—	—	—	—	—	—	—	—	—	8	—	—	18	18
	June 16	1	—	3	—	—	—	—	—	—	—	—	13	—	—	3	20
Blackrock Urban District	May 26	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7
	June 2	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7
	June 9	4	—	—	—	—	—	—	—	—	—	—	—	—	—	4	4
	June 16	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
Kingstown Urban District	May 26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	June 2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1b
	June 9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	June 16	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
City of Belfast	May 26	—	—	—	9	—	—	—	—	—	—	—	—	—	—	—	—
	June 2	—	—	11	—	—	—	—	—	—	—	—	—	—	—	—	17
	June 9	—	—	8	—	—	—	—	—	—	—	—	—	—	—	—	14
	June 16	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	11
City of Cork	May 26	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	2
	June 2	4	—	—	1	—	—	—	—	—	—	—	—	—	—	—	7
	June 9	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2c
	June 16	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	4
City of Londonderry	May 26	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	4
	June 2	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2
	June 9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
	June 16	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	2
City of Limerick	May 26	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	3
	June 2	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	3d
	June 9	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	5
	June 16	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	3f
City of Waterford	May 26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
	June 2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
	June 9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	June 16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1

^a Continued fever. ^b Not including one case of cerebro-spinal meningitis. ^c Not including one case of varicella. ^d Not including one case of measles. ^e Including one suspicious case.

^f Not including 4 cases of measles.

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

Table II. exhibits the number of cases of certain infectious diseases treated in the Dublin Hospitals during the week ended June 16, 1917, and the number under treatment at the close of each of the three preceding weeks.

TABLE II.

Diseases	No. of Cases in Hospital at close of week ended			Week ended June 16.			
	May 26.	June 2.	June 9.	No. admitted	Discharged	Died	No. under treatment at close of week
Enteric Fever	7	5	3	3	3	—	6
Typhus	—	—	—	—	—	—	—
Small-pox	—	—	—	—	—	—	—
Measles	73	57	50	10	17	1	42
Scarlet Fever	24	27	23	13	4	—	32 ^a
Diphtheria	10	13	12	6	3	—	15
Pneumonia	21	19	22	10	9	—	23

* Exclusive of 17 patients in "Beneavin," Glasnevin, Dublin, the Convalescent Home of Cork Street Fever Hospital.

From this Table it appears that the cases admitted to hospital during the week ended June 16, and the cases under treatment at its close, respectively, were as follows:—Enteric fever, 3 and 6; measles, 10 and 42; scarlet fever, 13 and 32 (exclusive of 17 convalescents at Beneavin, the Convalescent Home of Cork Street Hospital); and diphtheria, 6 and 15. Ten cases of pneumonia were admitted during the week, and 23 remained under treatment at its close. Of the deaths in hospitals during the week, 1 was from measles.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, June 16, in 96 large English towns (including London, in which the rate was 12.3) was equal to an average annual death-rate of 12.8 per 1,000 persons living. The average rate for 16 principal towns of Scotland was 14.7 per 1,000, the rate for Glasgow being 15.7, and that for Edinburgh 13.4.

INFECTIOUS DISEASES IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell-Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended June 16. From this report it appears that of 45 cases notified, 13 were of pulmonary tuberculosis, 9 of other forms of tuberculosis, 13 of scarlet fever, 6 of diphtheria, and 4 of erysipelas. Among the 386 cases of infectious diseases in hospital at the close of the week were 147 of pulmonary tuberculosis, 93 of scarlet fever, 69 of measles, 30 of diphtheria, 17 of whooping-cough, 7 of cerebro-spinal fever, 3 of erysipelas and 1 of enteric fever.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of June, 1917.

Mean Height of Barometer,	-	-	-	30.005 inches.
Maximal Height of Barometer (30th, at 9 a.m.),			30.417	,,
Minimal Height of Barometer (19th, at 9 p.m.),			29.620	,,
Mean Dry-bulb Temperature,	-	-	-	56.5°.
Mean Wet-bulb Temperature,	-	-	-	52.6°.
Mean Dew-point Temperature,	-	-	-	49.0°.
Mean Elastic Force (Tension) of Aqueous Vapour,			.348	inch.
Mean Humidity,	-	-	-	76.6 per cent.
Highest Temperature in Shade (on 16th),	-		71.0°.	
Lowest Temperature in Shade (on 30th),	-		46.3°.	
Lowest Temperature on Grass (Radiation) (25th)			40.0°.	
Mean Amount of Cloud,	-	-	-	57.8 per cent.
Rainfall (on 11 days),	-	-	-	1.598 inches.
Greatest Daily Rainfall (on 25th),	-	-	-	0.497 inch.
General Directions of Wind,	-	-	-	W., E., S.W.

Remarks.

A very favourable month of average temperature and some heavy although infrequent rainfalls—especially on the 7th

(0.310 inch) and 25th (0.497 inch). It is true that rain fell daily from the 2nd to the 7th inclusive, but from the latter date to the 20th the weather was almost rainless. Like May, June proved a floral month—roses in particular showing magnificent bloom. Mimosa trees also showed quite exceptional blossom towards the close of the month. Dublin was almost entirely exempt from electrical disturbances, which were, however, severe on some occasions both in the inland counties of Ireland and in England. During a thunderstorm which visited London on the 16th little or no rain fell in the southern or south-eastern suburbs, but very large quantities, with heavy hail, in the western and northern districts—as much as 3.44 inches at Primrose Hill, 3.20 inches at Camden Hill, Kensington, and 2.86 inches at Camden Square. Another heavy thunder-rain on the night of the 28th yielded between 1.2 inches and 1.6 inches at a number of places in the south of England.

Over the larger parts of Great Britain, and more especially in the East and South-east of England, the mean temperature was above the average. The highest readings occurred around the middle of the month, when the thermometer rose in the screen to between 82° and 90° in several parts of England, and reached 93° at Little Massingham in Norfolk on the 17th. In Ireland and the West of Scotland the thermometer seldom exceeded 70° . At the close of the month a cold northerly wind set in over Great Britain, and on the 29th and 30th the highest readings were in many places below 61° .

Bright sunshine was deficient in Ireland, but exceeded the average in most parts of Great Britain.

In Dublin the arithmetical mean temperature (58.1°) was above the average (57.9°) by 0.2° ; the mean dry-bulb readings at 9 a.m. and 9 p.m. were 56.5° . In the fifty years ending with 1916, June was coldest in 1916 (M. T. = 54.1°), 1909 (M. T. = 54.8°), 1907 (M. T. = 55.4°), 1882 (M. T. = 55.8°), and 1879 ("the cold year") (M. T. = 55.9°). It was warmest in 1887 (M. T. = 62.3°), 1896 (M. T. = 61.4°), and 1899 (M. T. = 61.3°). June 1916 therefore established a record for coldness.

The mean height of the barometer was 30.005 inches, or 0.088 inch above the corrected average value for June—namely, 29.917 inches. The mercury rose to 30.417 inches

at 9 a.m. of the 30th, and fell to 29.620 inches at 9 p.m. of the 19th. The observed range of atmospheric pressure was, therefore, 0.797 inch.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 56.5°, or 4.1° above the corresponding M. T. for May, 1917. Using the formula, $\text{Mean Temp.} = \text{Min.} + (\text{Max.} - \text{Min.}) \times .465$, the value was 57.6°, or 0.2° above the average mean temperature for June, calculated in the same way, in the thirty-five years, 1871-1905, inclusive (57.4°). The arithmetical mean of the maximal and minimal readings was 58.1°, compared with a thirty-five years' average of 57.9°. On the 16th the thermometer in the screen rose to 71.0°—wind, S.W. ; on the 30th the temperature fell to 46.3°—wind, E. The minimum on the grass was 40.0°, on the 25th, after a hail storm. The mean maximum was 64.4° ; the mean minimum was 51.7° ; the mean grass minimum was 48.2°.

The rainfall was 1.598 inches on 11 days. The average rainfall for June in the thirty-five years, 1871-1905, inclusive, was 1.990 inches, and the average number of rain-days was 15. The rainfall, therefore, and the rain-days also were below the average. In 1878 the rainfall in June was very large—5.058 inches on 19 days ; in 1879 also, 4.046 inches fell on 24 days. On the other hand, in 1889, only 0.100 inch was measured on 6 days. In 1887 the rainfall was only 0.252 inch, distributed over 5 days. June 1910 established an undisputed record for excessive rainfall in Dublin—the measurement being 6.211 inches on 19 days. In 1914 only 0.878 inch fell on only 9 days; in 1915, 1.617 inches on 13 days, and in 1916, 2.363 inches on 18 days.

The rainfall in Dublin during the six months ending June 30th amounted to 11.460 inches on 88 days, compared with 17.011 inches on 123 days in 1916, 11.107 inches on 95 days in 1915, 9.010 inches on 94 days in 1914, 15.097 inches on 104 days in 1913, 13.756 inches on 110 days in 1912, 7.729 inches on 80 days in 1911, 18.632 inches on 111 days in 1910, 12.061 inches on 84 days in 1909, 11.729 inches on 107 days in 1908, 12.336 inches on 108 days in 1907, 12.641 inches on 109 days in 1906, only 6.741 inches on 67 days in 1887, and a thirty-five years' average of 12.030 inches on 96 days.

High winds were noted on 10 days, but never reached gale

force (8). Hail fell on the 25th and 26th. A solar halo was seen on the 19th.

At the Normal Climatological Station in Trinity College, Dublin, the observer, Mr. Henry Allman Lavelle, reports that the arithmetical mean temperature was 58.3° , the mean dry-bulb reading at 9 a.m. and 9 p.m. being 57.4° . The thermometer rose to 71° in the shade on the 14th and 16th, and fell to 46° on the 30th. The grass minimum was 39° on the 25th. Rain fell on 11 days to the amount of 1.685 inches, 0.57 inch being measured on the 25th. The number of hours of bright sunshine registered by the Campbell-Stokes sunshine recorder was 187.2, giving a daily average of 6.2 hours. The corresponding figures for 1905 were 217.6 hours and 7.3 hours; 1906, 210.3 and 7.0; 1907, 129.4 and 4.3; 1908, 181.4 and 6; 1909, 158.7 and 5.3; 1910, 139.9 and 4.7; 1911, 190.9 and 6.4; 1912, 161.7 and 5.4; 1913, 173.5 and 5.8; 1914, 168.5 and 5.6; 1915, 172.4 and 5.7.; and 1916, 169.3 and 5.6. The mean earth temperature read at 9 a.m. was 58.9° at a depth of one foot below the surface of the ground, 54.6° at a depth of 4 feet.

At Ardgillan, Balbriggan, Co. Dublin (210 feet above sea-level), Captain Edward Taylor, D.L., measured 1.11 inches of rain on 12 days, the heaviest fall in 24 hours being 0.31 inch on the 21st. The rainfall was 1.10 inches below the average of twenty-four years, while the rain-days were 1 in defect. Temperature in the screen rose to 69.4° on the 17th, and fell to 44.3° on the 25th. From January 1 to June 30, 1917, the rainfall at Ardgillan amounted to 11.97 inches, or 0.68 inch less than the average, and the rain-days numbered 97, or 4 in excess. The extremes of rainfall in June at Ardgillan in recent years have been—greatest, 4.62 inches in 1910 on 17 days; least, 1.11 inches in 1917 on 12 days.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, was 1.03 inches on 12 days. This was the smallest June rainfall at Malahide for 14 years, except in 1913, when only 0.94 inch fell in that month. The heaviest fall in 24 hours was 0.195 inch on the 21st. The Malahide rainfall for 1917 to June 30 amounts to 9.570 inches on 85 days.

At the Ordnance Survey Office, Phoenix Park, Dublin, rain fell on 11 days to the total amount of 1.240 inches, 0.224 inch being registered on the 6th. The duration of bright sunshine

was 229.8 hours, the largest daily duration being 13.9 hours on the 30th.

According to Mr. J. Pilkington, the rainfall at Stirling, Clonee, Co. Meath (height above sea level, 231 feet), was 1.26 inches on 9 days. The heaviest day's fall was 0.30 inch on the 2nd. The rainfall of the first 6 months of 1917 at Clonee has been 12.60 inches on 94 rain-days, compared with 18.00 inches on 125 days in 1916, 12.06 inches on 85 days in 1915, and 10.28 inches on 91 days in the corresponding period of 1914.

At Cheeverstown, Clondalkin, Co. Dublin, Miss Mary Love recorded a rainfall of 1.17 inches on 12 days. The greatest fall in 24 hours at Cheeverstown was 0.27 inch on the 22nd. Thunder was heard on the 12th and 13th.

Mr. F. Dudley Joynt returns the rainfall at 89 Anglesea Road, Donnybrook, Dublin, at 1.045 inches on 9 days, 0.260 inch having fallen on the 6th, and 0.240 inch having been recorded on the 23rd. The half-year's fall was 10.100 inches on 78 days.

Mr. Harold Fayle forwards the following weather report for June from Sandford Lodge, Ranelagh, Dublin :—

Mean corrected Height of Barometer,	-	29.999 inches.
Highest corrected Reading (30th, 8 hours),	-	30.41 ,,
Lowest corrected Reading (19th, 21 hours),	-	29.62 ,,
Mean Dry-bulb Temperature, -	-	56.7°.
Mean Wet-bulb Temperature,	-	53.4°.
Mean Maximal Temperature -	-	64.9°.
Mean Minimal Temperature -	-	49.8°.
Arithmetical Mean Temperature,	-	57.4°.
Highest Temperature in Screen (16th),	-	72°.
Lowest Temperature in Screen (25th, 30th),	-	43°.
Lowest Temperature on Grass (25th),	-	31°.
Nights of Ground Frost,	-	0
Rainfall (on 10 days),	-	1.23 inches.
Greatest Daily Rainfall (6th),	-	0.30 inch.
Mean Amount of Cloud,	-	60 per cent.
Days of Clear Sky,	-	2
Days of Overcast Sky,	-	8
General Directions of Wind,	-	N.E.

Writing from Belfort House, Dundrum, Co. Dublin, Dr. Arthur S. Goff states that rain fell there on 13 days to the amount of 1.20 inches, the largest fall on any one day being

0.27 inch on the 6th. The air temperature ranged from 77° on the 16th to 46° on the 30th. The mean temperature in the shade was 61.1°. The half-year's rainfall was 11.04 inches on 86 days.

Mr. W. J. McCabe, on behalf of the Right Hon. L. Waldron, D.L., supplies the following record of the rainfall at Marino, Killiney:—Rain fell on 8 days to the amount of 9.86 inch, the maximal fall in 24 hours being 0.30 inch on the 6th. The average rainfall in June at Cloneevin, Killiney, in the 24 years, 1885-1908, was 1.771 inches on 13.2 days.

Dr. J. H. Armstrong reports that at Coolagad, Greystones, Co. Wicklow, the rainfall was 1.19 inches on 14 days. The heaviest rainfall in 24 hours was 0.33 inch on the 6th. A hail-shower occurred at 12.30 p.m. on the 21st. The Welsh Mountains were seen at 8.30 p.m. of the 21st and at 6 a.m. of the 27th. The thermometer rose to 67° in the shade on the 15th and 16th, having fallen to 46° on the 1st.

At Auburn, Greystones, Co. Wicklow, Mrs. Sydney O'Sullivan measured 1.64 inches of rain on 13 days, 0.35 inch being recorded on the 6th.

Dr. F. O'B. Kennedy reports that at the Royal National Hospital for Consumption for Ireland, Newcastle, Co. Wicklow, rain fell on 16 days to the amount of 1.66 inches, the maximal fall in 24 hours being 0.29 inch on the 6th. The mean temperature for the month was 55.3°, the extremes being—highest, 69° on the 12th, 16th and 17th; lowest, 39° on the 9th. The mean maximal temperature was 62.9°; the mean minimal temperature was 47.6°.

The Rev. Canon Arthur Wilson reports a rainfall of 2.63 inches on 16 days at the Rectory, Dunmanway, Co. Cork. The heaviest falls were 0.60 inch on the 2nd and 0.44 inch on the 26th. June, 1917, was a fine but rather cool month, with several night frosts. The rainfall for the completed six months of 1917 amounts to 19.50 inches on 94 days, compared with 27.28 inches on 122 days in 1916, 28.45 inches on 105 days in 1915, 31.38 inches on 106 days in 1914, 39.32 inches on 123 days in 1913—the average being 28.57 inches and 116 days in the last 12 years. In 1908, the rainfall for the first half-year was 24.79 inch—the next lowest to the present year. It is noteworthy that the rainfall for the 7 months ended with June is 1.73 inches less than that for the 2 months, October and November, 1916, which was 26.02 inches.

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THIS is the name given to a concentrated food and digestive introduced some time ago by Messrs. Allen and Hanbury, Ltd., of 37 Lombard Street, London, E.C. 3.

It is an improvement on the well-known and formerly much-used preparation, Sanatogen.

The percentage composition of Bynogen speaks well for its nutritive and digestive value. One hundred parts contain 75 parts of pure milk casein, 20 parts of a specially prepared extract of malt in a soluble form, 2 parts of glycerophosphate of sodium, 2 parts of glycerophosphate of calcium, and one part of glycerophosphate of magnesium. Its percentage of nitrogen, therefore, is high, while the carbohydrate present is in a very suitable form for easy assimilation. The mixed glycerophosphates have now an assured place in therapeutics, although not official, and are probably most useful when taken in combination with casein and malt.

“ Bynogen ” should be mixed in a small quantity of cold water to a smooth thin paste; this may then be added to a cupful of hot or cold fluid, such as water, milk, cocoa, beef tea, arrowroot, soup, &c. “ Bynogen ” can, if desired, be taken alone or sprinkled on bread and butter, toast, porridge, puddings, or similar articles of solid food.

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THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

SEPTEMBER 1, 1917.

PART I. ORIGINAL COMMUNICATIONS.

ART. VIII.—*A Short Summary of the Surgical Technique in Nerve Lesions of Modern Warfare.* By CHARLES GREENE CUMSTON, B.S., M.D.; Privat-docent at the University of Geneva; Honorary Member of the Surgical Society of Belgium; Fellow of the Royal Society of Medicine of London, &c.; Geneva, Switzerland.

THE following summary of the surgical technique in nerve lesions of modern warfare is simply intended to be a general survey of the knowledge obtained so far in the course of the war, and it is assumed by the writer that the recent researches in the pathological histology of the nerve lesions due to projectiles and their results are known to the reader for the proper understanding of what is to be said. It is also to be understood that lesions of the peripheral nerves will alone be considered.

The surgery of the peripheral nerves offers special features resulting from the delicacy of the structures it is intended to repair. On the other hand, on account of the changed anatomical relations between a given nerve trunk or branch and the surrounding structures resulting from old inflammatory lesions, frequently of considerable

extent, all operative work of this kind requires particular prudence on the surgeon's part.

For operations on the nerves local anaesthesia of any type is to be discarded in all cases with but very few exceptions, and general narcosis with ether, chloroform, or ethyl chloride should be resorted to. Thus, the surgeon can work quietly in interferences which are always very painful in mixed nerve trunks, and at the same time all infiltration of the tissues from local anaesthetic injections is done away with. The only indication for local anaesthesia is when the lesion is superficial and limited in extent.

An absolutely aseptic technique must be carried out since these operations are often long, and for this reason extensive raw surfaces are exposed to the air. It should not be forgotten that the work is to a large extent carried out in cicatricial tissue which reacts feebly against infection, and which, in most cases, has been the seat of a suppurative process, the remains of which are sometimes still present, even as much as several months after complete cicatrification has ensued.

Likewise, the use of antiseptic solutions is to be tabooed as they are all more or less irritating, and may, for this very reason, awaken an infectious process which is on the point of dying out. Tepid physiological salt solution is the only fluid that should be permitted to come in contact with the wound, and it should likewise be used for washing the gloved hand.

It is my unqualified opinion that the surgeon should never undertake any operative interference on the nerves when the conditions of obtaining asepsis are the least doubtful. For rendering the skin aseptic I know of nothing better than tincture of iodine, while sterilisation of instruments and unabsorbable suture material is satisfactorily obtained by boiling.

It seems to the writer that the use of the Esmarch band, so much employed by many surgeons in order to procure a bloodless field of operation, should be resorted

to only in those cases where the structures are unusually vascular. The use of the Esmarch is not infrequently followed by a haematoma which results from the fact that open vessels do not bleed at the time it is removed, and, therefore, are not ligated since they are not seen, and commence to bleed only after the wound has been closed. Then there is the vaso-dilatation which never fails to occur after removal of the band, and gives rise to rather profuse oozing in the wound, so that a haematoma is very prone to ensue, and adds one more factor of infection.

The incision of the skin made to expose the field of operation deserves some attention. It is undoubtedly uncommon to be obliged to excise all or a portion of the skin cicatrix, but there are other reasons why the incision should be made in a given way. As to its location, it is better practice not to carry it directly over the line of exposure of the nerve, and this rule should be especially followed when dealing with superficial nerves or regions where it would be a difficult matter to isolate them by muscular transposition or otherwise from the neighbouring organs, and particularly from the integuments involved in the operation.

Although primary union is most likely, there is always some risk of the adhesions recurring, and the nerve which has been freed will again become imbedded in fibrous tissue. This is particularly true of the median and ulnar nerves at the forearm.

As to the length of the incision, it should be made long from the start, as much exposure of parts is requisite. If it is not long enough at the beginning of the operation, and as this is in progress, the surgeon will invariably be compelled to lengthen it. It is well to remember that *the cicatricial process is always more extensive* than external examination of the parts would lead one to suspect.

Very frequently when the site of the lesion is exposed the surgeon comes face to face with a mass of compact fibrous tissue which intimately adheres to the muscles,

arteries, and veins of the region, and it is in this block of organic cement, if I may be allowed this term, that search for the nerve must be made in order to isolate and free it. One is often obliged to search for the nerve above or below the lesion at a point where the nerve is normal, and then follow it down to and into the midst of the sclerous mass. To accomplish this long and laborious work a long incision to start with will never be regretted.

The nerve must always be handled with all due precaution, lifted in gauze moistened with salt solution, and carefully retracted by some small smooth instrument. A nerve is very sensitive to all external contact, and the momentary disappearance of its electric conductivity, when even slight compression is brought to bear on it, can be easily verified.

The nerve having been exposed and carefully freed from all the surrounding structures, pathological or otherwise, the technique to be carried out will vary according to the nature of the lesions which are now revealed in their anatomical reality. When there is a complete section of the nerve, approximation with end-to-end suture is all that is required, and the same applies if a small segment of the trunk must be excised. Under these favourable circumstances one almost accomplishes a primary suture. But a true primary suture of a nerve can hardly ever be realised in war surgery, and I am unaware that any case has been recorded up to date.

It is clear that luck might call upon the surgeon to perform primary suture of a nerve, but personally I should feel inclined to desist for a time until certain that infection did not develop in the wound, which would, of course, destroy the nerve union. I am fully aware that by waiting the secondary neuritis following upon complete section of a nerve is an obstacle to regeneration, and it is only secondary suture that has been resorted to during the war—that is to say, after cicatrisation of the wound. But a diagnosis of complete section of a nerve trunk cannot be made with certainty until several weeks

after the injury unless the nerve is cut down upon and inspected *de visu*.

The technique of secondary suture varies with the operator, and is dependent upon two conditions that must of necessity exist—namely, that the proximal and distal ends can be approximated, or a separation may exist to such a degree that end-to-end suture is impossible. The latter eventuality is not common.

When approximation is possible direct neural suture should be done according to Carrel's technique. For this fine embroidery needles are used, threaded with fine silk such as is used for suture of the blood-vessels. Personally, I prefer ordinary linen thread, No. 700, and a very fine straight sewing needle with a minute round eye, ordinarily called milliners' needles.

A central suture is first passed to approximate the ends, after which four lateral sutures are passed, which include only the sheath formed by the neurilemma. Instead of these four lateral sutures an oblique running suture may be used, carrying it around the nerve trunk in the form of a spiral. In this way both ends are brought in contact by their enveloping sheath. If any difficulty is encountered in passing these fine needles through the nervous tissue, which in many cases has become hardened, the needle and thread need only be immersed in sterile liquid paraffin for a minute, after which they will readily perforate the nerve.

I have had no experience with nerve-splitting for union of the ends, and, therefore, cannot offer an opinion as to its value, but I fancy that it is little, if at all employed. Paraneural indirect suture is resorted to by some; this suture includes only the cellular tissue adjacent to the neurilemma, but my impression is that this suture is quite insufficient. The same objection can be made to indirect perineural suture, which includes the neurilemma and forms a crown of suture surrounding the nerve-trunk, although it is preferable to the paraneural indirect method. It could be applicable only to large nerve trunks.

So far I have only considered the simpler types of cases in which approximation of the divided ends is possible, but when the distance between them is too great to bring them into apposition and suture them directly, other procedures must of necessity be resorted to, and foremost among these are the various procedures of *suture à distance*.

Suture by a thread uniting the two ends of the nerve according to Assaky's method is much the simplest. By means of a long fine catgut reached from one divided end to the other, a series of superimposed loops are made, two or three for a medium-sized nerve and six to eight for a large nerve will be sufficient. These loops, which should include only the neurilemma, act as a conducting thread for the fibres undergoing regeneration. There is, however, one very serious objection to this method, and that is that the catgut is absorbed in lesser time than that required for the regeneration of the nerve fibres.

To obviate this defect several other procedures have been devised, such as Van Lair's tubular suture, which consists in interposing an ossein drain between the divided ends and including each one in the lumen, they being first connected by a catgut suture. Thus the new fibres undergoing regeneration are contained within the lumen of the decalcified bone tube, and by the neurotropic influence exercised by the distal end a useful action upon the new-formed fibres may result. But in some cases the ossein tube has been known to have been absorbed too quickly, so that Van Lair substituted for this rubber tubes of from one-half to one millimetre in thickness.

It is hardly necessary to refer to tubes made of magnesium or of gelatin hardened in formol, as they present no advantages over the above.

An ingenious procedure has been developed by Foratimi, and successfully employed in the Manchouria campaign by Hashimoto and Takuoka, and by Léri and Masson in the present war. To unite the proximal and distal nerve-ends, and for the direction of

the proliferation of the fibres, arteries or veins of a freshly-killed calf are employed in place of a tube.

After having removed the vessels from the animal with all due aseptic precaution, they are stretched over a glass rod, hardened in a 5 per cent. to 10 per cent. formol solution for twenty-four hours, then washed in running water for about forty hours, and lastly they are boiled for twenty minutes and preserved in 95 per cent. alcohol. I do not advise removing a portion of a large superficial vein from the patient himself, as this auto-transplantation offers too many difficulties. Neither do I favour either Létiévant's or Brunner's procedures of nerve autoplasty.

Nerve anastomosis has been utilised especially in cases of facial paralysis, and it can be resorted to for the peripheral nerves of the limbs as well. The anastomosis is either termino-lateral or termino-terminal. The former consists in implanting the distal end of the divided nerve into an adjacent trunk without interrupting the continuity of the latter. This is termed simple implantation.

The nerve end must be freshened because otherwise the divided fibres may be the starting-point of a process of degeneration. From this viewpoint a lateral freshening of the intact nerve may be done, but it is much simpler to merely split the trunk and then introduce the freshened end of the distal nerve, which, by the way, should be cut in the shape of a wedge. The split is quite sufficient to injure enough fibres so that the process of regeneration may proceed.

A few perineural sutures will retain the anastomosis in contact.

Double implantation is the implantation of both the proximal and distal ends of the divided nerve into a split made in an intact nerve trunk. I have had no experience with this procedure, but can see no objection to it if circumstances permit of its performance.

Termino-terminal anastomosis is suture of the distal end of the divided nerve to the proximal end of a neighbouring intact nerve. This procedure was proposed by

Létiévant in cases of simultaneous division of two adjacent nerves at different levels. But if only one nerve is divided, a deliberate division of a normal nerve can be made and its distal end employed for the anastomosis.

It would seem needless to remark that this procedure can be justified only when suppression of the normal nerve shall be amply compensated by the regeneration of the nerve primarily injured. The implantation in the proximal end of the injured nerve of the distal end of the divided healthy nerve can be done, and thus a crossed anastomosis is effected.

The procedures by nerve-graft from an animal, or hetero-transplantation, usually result in necrosis of the graft, and I am opposed to the opinion of Warren, who, in his excellent "Text-Book of Surgery," Vol. I., page 664, recommends transplantation on the strength of one successful case in which it was applied to the musculo-spiral nerve. On the other hand, in homotransplantation the graft becomes the seat of a degenerative process with formation of atrophic cells which may favour the progression of the axis-cylinders of the proximal end.

The success of these various procedures—viz., sutures of all types, autoplasty and nerve anastomosis—is greatly aided by neurotropism, which appears to attract the proliferation of the fibres in the direction of the distal end. The realisation of this process is quite possible from the fact that the intraneuronal circulation takes place longitudinally.

Division of nerve trunks as met with in wounds by projectiles of war is not always complete, and more frequently partial division is encountered. For this reason an interference is certainly simplified, because all that is required is resection of the fibrous tissue interposed between the divided fibres, followed by a lateral suture with fine linen thread. But a difficult problem to solve often arises during the operation; I refer to the case of a nerve which is manifestly injured, but the continuity of which is not interrupted.

When such is the condition, the nerve rapidly loses its size, shape and consistency; it becomes spread out like a fan from the fact that it is flattened and then becomes lost in a mass of hard fibrous tissue, which occupies the area traversed by the projectile. The nerve then emerges from the distal side of the fibrous mass, becomes normal in structure, and continues its normal course.

If traction is made on the proximal end no effect is evident on the distal end, and there is absolutely nothing resembling a nerve trunk to be found in the fibrous tissue interposed. This type of lesion almost always follows large, deep, suppurating wounds resulting from the bursting of a shell. It is probable that the nerve is severely crushed and lacerated, but there is no absolute division, so that, regardless of the appearance of an existing solution of continuity, the nerve tubules passing through the fibrous mass retain a certain amount of conductivity, this being made evident by the persistency of its sensibility.

Now, it is evident that in these circumstances the proper conduct to follow is a matter of some difficulty to decide upon. But if one recalls that surgery of the nerves requires conservatism above all things, resection of the apparent purely fibrous portion must never be attempted until one is certain beyond all question that it does not contain any nerve fibres.

The same question arises when dealing with central or lateral neuromata, and some surgeons still maintain that these should be excised. But electric exploration of the nerve most usually shows that they in no way interfere with the conductivity of the nerve, and, therefore, they should be left alone. When they are excised the nerve must undergo a long process of regeneration, and there is always some chance that this will be incomplete.

Cases of complete or incomplete division of a nerve are not the most frequent in wounds from projectiles, the lesions being usually a nerve comprised in a mass of inflammatory cicatricial tissue which compresses it. The

compression varies in degree from that resulting from fibrous bands, the slightest of all, to that exercised by a very dense, hard, fibrous mass in the midst of which the nerve elements cannot be detected at first sight. The nerve is often very hyperæmic and covered by a rich vascular network.

In other cases the nerve is anæmic and strangled in a fibrous ring, but as soon as it is freed it immediately assumes its normal shape and aspect.

Therefore, the therapeutic indications are clear. The nerve must be carefully freed from the new-formed fibrous tissue which itself is adherent to the vessels, and as any line of cleavage is most difficult to detect, it goes without saying that the dissections will be long and particularly laborious. Occasionally, the fibrous mass is highly vascularised, so that the haemorrhage resulting from the dissection may obstruct the view of the parts, and in this case the surgeon must expose the nerve above and below the lesion in order to continue the operation with prudence.

Such an interference as the above is one of the most frequent in nerve surgery of war, and it is likewise one of the most essential, because no other treatment can accomplish the freeing of the nerve involved. It is also followed by the happiest and quickest results. A nerve repaired by direct suture and disengaged from the fibrous mass does not mean that the operation is completed, for it is absolutely essential to protect it from a further process of fibrous formation, and to this end one of the simplest, and, also, perhaps, the one most generally employed, is to bury the restored nerve in the surrounding muscular masses, or by covering it with an artery or vein of a calf, according to Foratimi's method.

After the nerve has been surgically restored medical treatment with massage, electricity, mechanotherapy, &c., will conclude the treatment.

ART. IX.—*The Wassermann Test as a Means of Estimating the Prevalence of Syphilis in a Community.*^a
By MRS. GEORGINA R. DARLING, M.D., Univ. Dublin; D.P.H., Belfast.

THE first fact that faced the recent Royal Commission on Venereal Diseases, according to their terms of reference, was to inquire into the prevalence of these diseases in the United Kingdom.

At the very outset of their work the Commissioners found that the figures then available could not be taken as an accurate index of the extent to which venereal disease exists in the country.

The main sources of information on the point are the death returns, the Army and Navy figures, those relating to the Police force, to prisons, asylums and Poor Law institutions. As to the general population, some idea of the prevalence of syphilis and gonorrhœa is afforded by the numbers of notifications of still-births and ophthalmia neonatorum respectively. As to the death returns, Dr. Stevenson says: “The worthlessness of the returns as an absolute statement of the number of deaths from venereal disease scarcely requires demonstration.” It is well known that medical practitioners rarely return either syphilis or gonorrhœa as the cause of death, owing to the fact that the death certificate is open to the inspection of relatives of the deceased. The figures relating to prisons, asylums and workhouses are no guide to the general prevalence of venereal diseases, relating, as they do, to the so-called “dregs of the population.” The Army and Navy figures are accurate and complete, but do not throw much light on the incidence of venereal disease in the whole community, as the conditions of life in the services differ widely from those of civil life. The notification of figures of still-births and ophthalmia neonatorum are more promising as an index to the preval-

* A Thesis read for the Degree of Doctor of Medicine in the University of Dublin, June, 1917.

ence of venereal diseases, but the short time the Order has been in operation, and the incompleteness of the returns, tend to lessen their value at the present time. As an average there seems to be a case-rate of about 8 per 1,000 of ophthalmia neonatorum and about 3 per cent. of still-births.

The recent formation in Belfast of an Ulster Branch of the National Council for combating Venereal Diseases has aroused great interest among the medical profession of that city, in the whole subject of the prevalence and treatment of venereal disease. It is believed by some that the incidence is unusually high in Belfast owing to the shipping, &c.

The most complete method of obtaining statistics as regards syphilis for the general population would be a "Wassermann Census," in which the blood of every individual in the United Kingdom would be examined. This, of course, is entirely outside practical politics, as it would involve an amount of labour difficult to imagine, and well-nigh impossible to perform. It might, however, be a feasible plan to obtain some trustworthy figures by selecting certain sections of the community, and performing an extended series of tests for each section, taking the percentage so arrived at as representing the prevalence for that section.

In order to make a beginning in the matter of estimating the actual prevalence of syphilis in Belfast, I have examined the blood of 171 women admitted as patients to the Belfast Maternity Hospital, with the kind assistance of Dr. Grace English, who has taken the specimens for me. The patients were not selected in any way, but each woman admitted had her blood examined. Most of them were admitted at full term, and were therefore *prima facie* less likely to have syphilis than a similar series of women who were not at full term. This guards against any overstatement of the incidence of the disease, if such a series is taken as any indication of the amount of syphilis in the general population.

The above series is largely an index of the prevalence of latent syphilis—that is, not causing symptoms at the time of examination—and would need to be supplemented by many other series of tests among the adults of both sexes, and young people of different age groups. It includes, however, a few cases of active disease, where the patient was admitted for threatened abortion.

The percentage of positive results obtained is 12.8.

This series may be compared with a similar series carried out under the supervision of Dr. Mott, in which the blood was examined of 71 mothers in Shoreditch Infirmary, and of some of their infants. The percentage of positive reactions among these women was much higher; 14.3 per cent. among the married and 27.6 per cent. among the unmarried patients. In the Belfast series almost all the women were married, and of the artisan class. It comes in an intermediate position between the Shoreditch cases, and another series of Dr. Mott's of 90 cases from the new hospital for women—all married and presumably of a rather higher social class—which gave a percentage of 6.6.

An interesting series of tests has been carried out by Sir John Collie on 500 apparently healthy adult males who had to pass before him for medical examination before entering their employment. This series gave the unexpected result of a percentage of 9.2 positive tests—all being cases of latent syphilis. It would have been very valuable to know the results of Wassermann tests carried out on the wives and children of these men, as the majority of them were married.

As a contrast to this series take that of Dr. Mott on 1,483 patients admitted to the infirmaries of Shoreditch, Westminster, and Paddington, giving practically 20 per cent. of positive reactions, a little more than double the incidence of the apparently healthy men of Sir John Collie's series.

One of the most important practical points in such investigations is the technique employed for the tests. In my series the first 50 cases (giving a percentage of 12

positive) were examined by Fleming's modification. In this technique one depends on the complement present in the blood of the patient for completing the haemolytic system, and the suspension of sheep's red cells used is unsensitised, depending again on the haemolytic amboceptor for sheep's corpuscles, which is normally present in human blood. Thus, Fleming's modification does not come under the head of original Wassermann tests as defined by the Sub-Committee of the Royal Society of Medicine on the methods of carrying out the Wassermann test, that is to say :—

“ (1) The ingredients of the test (red corpuscles, ‘antigen,’ haemolytic amboceptor, complement) are derived from *different* sources.

“ (2) The serum tested is inactivated before use. An independent haemolytic system is employed consisting of a suspension of red corpuscles, an inactivated haemolytic serum, and a fresh normal serum containing complement. The haemolytic values of the antiserum and complement are determined by a separate preliminary experiment.”

Thus, Fleming's method is one of those grouped by the sub-committee under the heading of “short-cuts,” most of which are more delicate than the original Wassermann, and considered liable to give a positive result with exceptional samples of normal serums.

My own experience was that occasionally the controls of the Fleming test “went wrong” for no reason that I could discover, and this led me to doubt my power of obtaining reliable results by this method, although I was carrying out the test strictly in accordance with Fleming's original paper. Thus after the first 50 tests of the series I began to use the original Wassermann technique, in small volumes, and with it have had no similar experience of unsatisfactory batches of tests. The detail of the technique is that described by Oliver Heath in the *British Medical Journal* for June 19, 1915.

The “antigen” is an alcoholic extract of heart-muscle standardised every few months. The haemolytic serum is

obtained from the Lister Institute, and the amount of it necessary is calculated from the titre of the serum, 5 M.H.D. being used for the test. Thus, if the titre of the serum is 800, the corpuscles are suspended in a dilution of 1 in 160 of the serum in normal saline. The complement is fresh normal human blood serum, titrated at the time of the test, and it is usually found that a dilution of 1 in 2 is sufficient. The volumes used are about 20 cubic mm. of inactivated patients' serum diluted 2 in 5 of saline; an equal volume of complement diluted 1 in 2, and 2 volumes of saline or antigen, as the case may be. Two volumes of a 5 per cent. sensitised suspension of sheep's corpuscles are added to each tube, after incubation at 37 per cent. for 40 minutes.

As to the relative values of these two methods the Sub-committee referred to above have given as their opinion that, in the present uncertain state of our knowledge as to the ultimate nature of the test, the original Wassermann with its full controls is the best adapted for general use, though it may be supplemented, for the control of treatment in known cases of syphilis, by the more sensitive "short-cuts," that is, by those admittedly likely to yield a larger percentage of positive reactions.

The whole question of the reliability of the Wassermann test as a means of diagnostinating syphilis has been frequently raised, but the discussion of its specificity hardly comes within the scope of this paper. On this point one may quote Dr. Fildes, who in his report of tests performed on 1,000 apparently healthy persons at the London Hospital, refers to Drs. Head, Sequeira and Turnbull as holding that the reaction is specific, and that a positive result denotes syphilis. The same may be said of the Staffs of most of the British Hospitals. Dr. Mott says, "accumulated experience has firmly established its great value as a means of diagnosis." In my series the positive results obtained were confirmed by a suspicious history (miscarriages, &c.) in most of the cases.

The conclusion drawn by Professor Karl Pearson from

the above-mentioned series of Dr. Fildes is that of the population examined 8 to 12 per cent. in the case of the males, and 3 to 7 per cent. of the females have syphilis.

The general impression given by a study of these series of tests is that about 10 per cent. of the whole population must be suffering from syphilis in some form or stage. To confirm or disprove this impression many more groups of tests would be necessary, and Wassermann reactions would need to be done in large numbers in every well-equipped laboratory.

These tests could serve the double purpose of furnishing statistics as to prevalence, and of aiding in the diagnosis of doubtful cases. Sir Arthur Newsholme, Medical Officer to the Local Government Board, says: "The provision of gratuitous examination of material from patients for the detection of spirochaetes or gonococci, and for the Wassermann test, is among the most immediately urgent needs."

To sum up. In order that the State may be able to deal effectively with this problem of venereal disease, the first step is to come to an accurate understanding of the amount and distribution of the evil. A possible path to such an understanding has been outlined above.

The necessity for widespread research along these lines is emphasised by the consideration that at the close of every great war there has been a greatly increased incidence of venereal diseases in the United Kingdom. If the European War is to prove an exception in this respect, it will be because the State has grappled beforehand with the matter, and already made efficient arrangement based on a clear knowledge of the facts.

ART. X.—*Pathological Report of the Rotunda Hospital for the Two Years ending October 31, 1916.*^a By ROBERT J. ROWLETTE, M.D., F.R.C.P.I., Pathologist to the Hospital.

THE stirring events which were taking place in Dublin twelve months ago prevented the presentation to this Section of the usual annual pathological report of the

^a Read before the Section of Pathology in the Royal Academy of Medicine in Ireland on Friday, May 14, 1917.

Rotunda Hospital. The present report, therefore, covers a period of two years, from November 1, 1914, to October 31, 1916. In consequence there is a much larger mass of material to be dealt with.

550 specimens were examined, exclusive of 413 specimens of urine sent for special report. Vaccines are still largely used in septic cases on both sides of the house, and their preparation has occupied a good deal of time.

Curettings and other fragments removed for purposes of diagnosis were examined on 222 occasions. One case of tuberculous endometritis was encountered, associated with tuberculosis of the tubes. The great majority of curettings (114 out of 138) showed definite glandular changes, varying from moderate increase in number to considerable hypertrophy, with invagination of epithelium, and in 18 cases formation of cysts. All these abnormalities are, following custom, classed as "endometritis," though it cannot be held that glandular hypertrophy is, by itself, a sign of inflammation. One must have considerable hesitation, indeed, in deciding on the degree of glandular development which is to be regarded as normal.

In the two years, twenty-two cases of malignant disease of the uterus were dealt with by operation—about our normal rate. Of these cases, 15 were epithelioma of the cervix, and one adeno-carcinoma of the cervix, three adeno-carcinoma of the body, two sarcoma of the body, and one chorion-epithelioma. The proportion of epithelioma is above our average, which for the previous nine years was 56 per cent. of the total.

The case of chorion-epithelioma is the third encountered in my experience at the Rotunda Hospital.

Sixty-three cases of myoma were examined. In twenty-six secondary changes—other than fibrosis which is almost always present—had occurred. The conditions were classified as:—Grey necrosis, 12; red necrosis, 3; fatty, 1; mucoid, 1; oedema, 1; cyst formation, 4; sarcoma, 1; calcification, 1; inflammation, 2.

Of the forty-one cases of salpingitis examined, only 7 were tuberculous. This is much below our previous average of 42 per cent.

Of the forty-eight cysts of the ovary, 4 were dermoids, 8 lutein cysts, 24 smooth-walled cystadenoma, and 13 papillary cysts. Of the last group—the papillary cysts—more than half—8 out of 13—gave histological evidence of malignancy.

Three solid tumours of the ovary came under examination, of which number 2 were carcinomata, and the other was a fibroma.

The number of specimens of lochia examined has further decreased in the last two years, the condition of the hospital as regards sepsis having been satisfactory. It is noticeable that in all the serious cases of puerperal infection the streptococcus was present, either alone or in association with other organisms. It is very rare to meet a case of severe puerperal sepsis due to any other organism than a streptococcus, but such cases sometimes occur, the causal organism being the *Staphylococcus aureus*. The gonococcus was not found in any septic puerperal case in the two years.

APPENDIX.

TABLE I.—*Examinations of Curettings and other Fragments for Purposes of Diagnosis.*

Endometritis	138	Hydatidiform mole	1
Endocervicitis	5	Chorionic villi, decidua, &c.	21
Erosion of cervix	11	Epithelioma of vulva	2
Epithelioma of cervix	7	Normal, débris, &c. . . .	7
Adeno-carcinoma of body of uterus	2		

TABLE II.—*Varieties of Endometritis.*

Glandular (including cystic)	18	Septic	16
Interstitial	8	Tuberculous	1

TABLE III.—*Operation Specimens.*

Papilloma of vulva . . .	2	Salpingitis or pyosalpinx	
Epithelioma of vulva . . .	2	(non-tuberculous) . . .	34
Myoma of bladder . . .	1	Salpingitis or pyosalpinx	
Cyst of vagina . . .	1	(tuberculous) . . .	7
Mucous polypus of uterus .	5	Tubal pregnancy . . .	15
Epithelioma of cervix . .	15	Double hydrosalpinx . . .	1
Adeno-carcinoma of cervix .	1	Cyst of ovary . . .	48
Adeno-carcinoma of body of uterus . . .	3	Fibroma of ovary . . .	1
Sarcoma of uterus . . .	2	Carcinoma of ovary . . .	2
Chorion-epithelioma of uterus . . .	1	Abscess of ovary . . .	2
Myoma of uterus . . .	63	Parovarian cyst . . .	1
Adeno-myoma of uterus . .	1	Cyst of broad ligament .	1
Fibroid uterus . . .	7	Sarcoma of large intestine	1
Double uterus . . .	1	Carcinoma of small intestine . . .	2
		Inflamed appendix . . .	6

TABLE IV.—*Organisms Observed in or Isolated from the Lochia in Forty-two Morbid Cases.*

Streptococci	14	<i>B. coli</i>	5
Staphylococci	6	Unrecognised bacilli . .	16
Unrecognised cocci . . .	19	Negative	7

THE TREATMENT OF UTERINE CARCINOMA.

PERCY (*Am. Jour. Obs.*, 1917, LXXV., 87) summarises a paper on this subject with the words, "Heat—not fire—will destroy cancer," while in the following paper Jacobson (101, *ibid.*) says that the radical abdominal operation thus far has given the highest percentage of cures in operable cases. Until radium, *X*-ray, or Percy's operation shall have proved their superiority to operation, their use should be limited to the inoperable cases. There is abundant clinical evidence to prove the value of radio-therapy; it, therefore, seems logical to follow every palliative or radical operation with radiotherapy. Certainly, Jacobson's summary seems to us to be the more rational.

PART II. REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Tumours: Innocent and Malignant. Their Clinical Characters and Appropriate Treatment. By SIR JOHN BLAND-SUTTON, LL.D., F.R.C.S.; Surgeon to, and Chairman of, the Cancer Investigation Committee of the Middlesex Hospital, &c. With 383 Illustrations. Sixth Edition. London, New York, Toronto and Melbourne: Cassell & Company, Ltd. 1917. Demy 8vo. Pp. ix + 790.

SIR JOHN BLAND-SUTTON's classical work on "Tumours" has reached its sixth edition. This fact and the author's fame should suffice as a bibliographical notice, but a few statements culled from the preface may prove of interest. Sir John tells us that in the year 1885 he began to collect material from man and other vertebrates in order to study the peculiarities of tumours both from a biological standpoint and especially in relation to the art of surgery.

The first edition of the present work was published in 1893. At that time the description of cancer was founded mainly on a study of the disease as it appears in the breast. But during the last twenty years a large amount of investigation has been carried out in relation to cancer of individual organs, such as the kidney, uterus, ovary or testicle, gall-bladder, and thyroid gland. Another new thing is the discovery of the liability of the Fallopian tube to cancer. This may be infected by cancerous particles shed into the peritoneal cavity and passively conveyed by peritoneal fluid into the open mouth of one or other Fallopian tube. Conversely, an ovary may become the seat of cancer through implantation of cancerous particles poured out from the ostium of a cancerous

Fallopian tube or shed from a primary focus in the colon, the stomach, or the gall-bladder.

The subject of cancer receives great attention in the present edition. No fewer than thirteen of the sixty-eight chapters into which the volume is divided are devoted to this terrible disease. Of these probably the most interesting is Chapter XXIII., concerning the cause of cancer. "Among the hypotheses or guesses at truth in connexion with this matter," writes the author, "there are two which require consideration: 1. The Embryonic. 2. The Parasitic.

While admitting that the embryonic theory advanced by Cohnheim has commanded much attention and served a valuable purpose in leading to a great extension of knowledge concerning "vestiges" and "rests," Sir John pins his faith to the parasitic theory. "Many," he says, "who are thoroughly acquainted with the clinical and pathological features of carcinoma feel strongly that this disease will ultimately come to be defined as a *chronic infective disease due to a microparasite which selects an epithelial cell.*" (Page 272.)

The author goes on to state that "the facts which support the parasitic theory of cancer may be summarised in the following way: In its initial stages the disease is purely local, then gradually spreads to the adjacent tissues, and at the same time infects the lymph-nodes which receive the lymphatics from the affected areas, and general infection of the body (dissemination) follows." (Page 274).

Again: The cause of cancer "is most probably a micro-parasite which stimulates the normal epithelial cells of adult individuals to multiply and produce cancer in the same way that the male gamete or spermatozoon initiates reproductive changes in the female gamete or ovum. The feature which distinguishes carcinoma from all infective diseases is its property of causing secondary deposits which reproduce the structural details of the organ primarily affected." (Page 275.)

Sir John Bland-Sutton admits (page 277) that the strongest argument against the parasitic theory of cancer is the failure to cultivate the cancer-cell outside the body. He concludes a very interesting chapter with the following commonsense remark: "While investigators are hunting for the *cause* of malignant tumours, practical surgeons have to deal with the concrete disease, and it is possible that the actual elucidation of the cause of cancer may come from clinical pathology." (Page 278.)

In reviewing the third edition of this work in the number of this Journal for September, 1903, we expressed the opinion that the book was at that time still the best in the English language on the subject. We remain of the same opinion, and can cordially recommend this sixth edition—an *édition de luxe*, beautifully brought out by the House of Cassell—as a classical work from the pen of one who is at once a surgical clinician of vast experience, an accomplished pathologist, and a ready writer.

J. W. M.

Staying the Plague. By N. BISHOP HARMAN, M.A., M.B. (Cantab.); Fellow of the Royal College of Surgeons of England. London: Methuen & Co., Ltd. 1917. F'cap. 8vo. Pp. viii + 120.

WE have read this little book with interest and sympathy. In part it is a running commentary on the Report of the Royal Commission on Venereal Diseases, but it is much more than this.

In his preface, the author says that "many have known for years of the dire plague which affects some human relationships, and have striven to awaken the nation to a consciousness of the evil, but for the most part the nation refused to be aroused. The Report of the Royal Commission on Venereal Diseases has awakened it with a start. To the end that the awakening may be widened into an intelligent and progressive activity this book is written."

The contents consist of a brief Introduction and of three parts. In the first of these latter "Sex" is considered in four cleverly written chapters on the meaning of sex, sex and the individual, sex and human ideals, and the abasement of sex. We use the word "cleverly" advisedly, for Dr. Bishop Harnian has succeeded in dealing with and explaining the physiology of sex in language which will on the one hand instruct the lay reader, and on the other hand interest the medical reader.

Part II. opens with Chapter V., giving an admirably clear account of what is meant by "Venereal Disease." In Chapter VI. the Report of the Royal Commission and its recommendations are summarised and commented on. Chapter VII. unfolds the terrible story of the malign familial influence of the venereal diseases to the second and third generation. In this chapter the incomplete explanation in the text of the Figures 2, 3, and 5 lends itself open to criticism. A little closer study of the diagrams, however, makes the meaning of certain arrows and circles quite clear.

Part III., on "Staying the Plague," includes Chapters VIII., IX., and X., of which the subject-matter is respectively:—Treatment and Prevention, The Real Remedy, and Training the Children. Through these chapters, and indeed throughout the book, there runs a silent, unobtrusive religious undercurrent of thought, such as is rare to find in works by medical authors of the present age. The author ends on a note of cheery optimism as to the future.

The Method of Enzyme Action. By JAMES BEATTY, M.A., M.D., D.P.H. London: J. & A. Churchill. 1917. Demy 8vo. Pp. xi+143.

DR. JAMES BEATTY was a distinguished student in the Medical School, Trinity College, Dublin, and the high opinion of him formed by his teachers is amply justified by the issue of the book under review.

It is a remarkable production when one remembers that it was written under difficult circumstances in a foreign place, amid the stress and distractions of war which, while stimulating imagination and mental activity, precluded access to libraries and original sources of information.

Professor Lieut.-Colonel E. Starling, F.R.S., contributes an appreciative introduction, and he considers that Dr. Beatty's hypothesis of the method of ferment action is well worth serious consideration.

The doctrine of enzymes and of catalytic action lies at the foundation of biological chemistry, since the majority of vital processes are intimately associated with some form of ferment action which, in turn, is always associated with the mobilisation and shifting of hydroxyl (OH) and hydrogen (H) ions. In truth, life itself may be regarded, in Starling's picturesque phrase, as the dynamical history of water.

The author endeavours to explain this mobilisation of the ions of water. He shows that for the directed reactions which are the distinguishing feature of living things and the condition of their evolution, two processes are required :—

- (a) Control of rate of reaction.
- (b) Control of sphere of reaction.

He further shows that enzymes which fulfil these processes display two qualities :—

- (a) A power, common to all ferment, of attracting the H or OH groups in water.
- (b) A power which is specific to the ferment in question, of adsorbing some particular substrate.

This double power probably indicates a double constitution. The enzyme action which takes place in oxidation appears to be one of the simplest forms. The hydroxides of manganese and iron are intimately connected with peroxidase action, and a peroxidase is probably a hydroxide of Mn, Fe, &c., preserved in the colloidal form by an emulsoid colloid.

Peroxidase activity is one of the most characteristic and persistent properties of living material.

The book is modestly written in a lucid and attractive style, and can be cordially recommended to the attention of physiologists and all those who are interested in the fascinating problems of physiological chemistry.

Seven excellent summaries are given throughout the volume, and these materially help the reader to intelligently follow the author's arguments, which are based upon the data of modern physical chemistry, and evince an accurate and extensive knowledge of organic chemistry.

RECENT WORKS ON TUBERCULOSIS.

1. *The Treatment of Tuberculosis by means of Spengler's Immune Bodies (I. K. Therapy).* By NIVEN ROBERTSON, M.D. (Edin.); D.P.H. (Camb.); Medical Superintendent, National Sanatorium, Benenden, Kent. London: Baillière, Tindall & Cox. 1917. Cr. 8vo. Pp. xiv + 152.

2. *Tuberculosis and how to avoid it.* By CLIVE RIVIERE, M.D.; Fellow of the Royal College of Physicians, London. London: Methuen & Co., Ltd. 1917. F'cap. 8vo. Pp. 127.

1. DR. NIVEN ROBERTSON gives in this book an admirable summary of treatment by Spengler's I. K. The substance I. K. itself consists of the blood of rabbits that have been immunised by intramuscular injections of different strains of living tubercle bacilli, and, in addition, by the streptococci that are usually found in chronic tubercular disease of the lung.

The volume will mainly appeal to tuberculosis specialists, and is useful in presenting in the English language information that is not obtainable elsewhere. We hardly think that either the book or the treatment would appeal to the general practitioner, for the author's

own experience is decidedly against the treatment being of any value. Out of forty-one cases which he treated, only two derived any benefit which could be attributed to I. K., thirty-six were apparently unaffected, and in one case the treatment was apparently harmful. Analysis of the literature is also barely favourable, some medical men declare against it, though out of the total number who have recorded their experiences, a majority undoubtedly quote fairly good results.

I. K. is employed in small doses, gradually progressing in somewhat the same way as tuberculin.

2. THIS little book is intended more for the general public than for the profession, and it is a quite suitable book to recommend. The writer explains very clearly the ways in which a person may become exposed to infection by the tubercle bacillus, and also points out very clearly the best methods of avoiding infection. He assumes that every individual will sooner or later during his life become infected with the tubercle bacillus in some form or other, and, therefore, advises that children should be fed with a certain amount of mixed raw milk as soon as the most susceptible period of infancy has been passed. By doing this the author thinks that a safe infection with bovine bacilli is likely to take place, and serve as a protection against more serious infection by human bacilli later on. The general advice in the book is excellent.

The Secretion of the Urine. By ARTHUR R. CUSHNY, M.A., M.D., LL.D., F.R.S. London: Longmans, Green & Co. 1917. 8vo. Pp. xi + 241.

DR. ERNEST H. STARLING (Lieutenant-Colonel, B.E.F.) has undertaken to edit a series of monographs on Physiology, each written by an expert in some particular branch of study.

He has entrusted the subject of renal secretion to the able hands of Professor Cushny, who is a well-known

authority and a skilled experimenter. Without presuming at finality having been attained, the author hopes that the treatise may serve as an advanced post for the furtherance of knowledge. It is based largely upon the data of physical chemistry, and it attempts to weld into a coherent view of renal function the varied and often discrepant accounts of many investigators. A copious bibliography is appended.

In Chapter I. the anatomy and histology of the kidney, with its millions of glomeruli, are clearly and succinctly given, and it is pointed out that the splanchnic nerves convey numerous vaso-constrictors and some vaso-dilator fibres to the kidney.

The blood-supply of the kidney is remarkably abundant, and it is probable that the kidneys are irrigated with nearly twice their weight of blood per minute—*i.e.*, the whole of the blood of the body passes through the kidneys in approximately five minutes. If this ratio holds in man, the blood-flow through the kidneys in twenty-four hours amounts from 1,000 to 1,500 litres. Others put the allowance on a lower scale, from 480 to 700 litres in twenty-four hours.

The mechanism of the secretion of urine is a fascinating subject, and has engaged the attention of many investigators for more than seventy years. The rival theories are :—

- (1) That of Bowman (1842), fortified by Heidenhain (1874); and
- (2) That of Ludwig (1844).

The modern theory, as stated by Dr. Cushny, is a compromise between these two theories, and is thus expressed :—

The secretion of urine consists of two distinct processes differing not only in site but also in nature. The first of these, the filtration, occurs in the glomerulus, and is purely physical; the second, the reabsorption, occurs in the tubules, and depends on the vital activity of the epithelium.

As to direct evidence for specific secretion by the cells of the kidney, it is disappointing, almost humiliating, to be told that an unbiassed examination of the evidence leads to the confession that the results of so much labour are meagre and unconvincing.

The chemical reaction of the urine is much talked of, but very imperfectly appreciated by most medical men. The clinical physician speaks glibly of a high degree of acidity of the urine, and does not realise within what small limits the acidity really fluctuates.

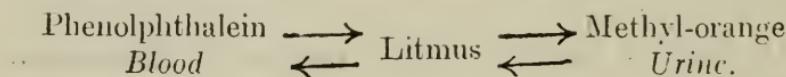
The truth is that while the "alkalinity" of the blood is very close to the line of neutrality, the "acidity" of the urine is also slight, and departs but little further from the other side of the neutral line.

This erroneous assumption of a high grade of acidity of urine rests upon doctors seldom using any indicator other than litmus.

Thus, phenolphthalein remains uncoloured both in blood and urine, and, on the other hand, urine is acid to reddened phenolphthalein but alkaline to methyl-orange.

In other words, the "alkalinity" of the blood lies between the limits indicated by litmus and phenolphthalein, whereas the "acidity" of urine lies between the limits of litmus and methyl-orange.

Diagrammatically :—



The work of the kidney consists in shifting the reaction from the limits indicated by phenolphthalein and litmus to those indicated by litmus and methyl-orange.

Yet it must be borne in mind that the efficiency of the kidney in eliminating the acids formed in the tissues is very great. This is essential to health, for any decline in the alkalinity of the blood is ominous.

It is true that the urine may be made alkaline to *litmus* by giving alkalies, which reach the kidney in the form of carbonates and bicarbonates. The degree of alkalinity is

limited, however, never passing beyond that of blood, and urine never gives the alkaline response to phenolphthalein. The reaction of the urine essentially depends upon the varying proportion of Na_2HPO_4 and NaH_2PO_4 from time to time.

Later chapters in the book deal with the action of diuretics, and other drugs; glycosuria, perfusion of the kidney, and albuminuria, with brief notes on nephritis and some other renal disorders.

Enough has been said to show how valuable a contribution Professor Cushny has made to a subject of intense interest and importance to the medical profession.

Pathology: General and Special: for Students of Medicine. By R. TANNER HEWLETT, M.D., F.R.C.P., D.P.H.; Professor of Bacteriology in the University of London; Lecturer on Bacteriology, London School of Tropical Medicine; Director of Pathology, Seamen's Hospital, Greenwich; Examiner in Bacteriology, University of London. Fourth Edition. London: J. & A. Churchill. 1917. Demy 8vo. Pp. xi. + 631.

ON two previous occasions earlier editions of Dr. Hewlett's Pathology were favourably reviewed in the pages of this Journal—the first edition (published in 1906) in the December number for that year (Volume 122, third series, No. 420, pages 428 (*et seq.*) and the second edition (published a year later) in the December number for 1907 (Volume 124, third series, No. 432, pages 447 and 448).

The text of the present edition has been revised throughout, a good deal of new matter has been added, and the micro-photographic plates now number thirty-seven, embracing about double that number of illustrations. There are also some fifteen figures inserted in the text, so that the work is amply illustrated.

Among the additions are descriptions of "trench frost-bite," "trench foot," or "local frigorism," and of "emphysematous gangrene" (or "gas-gangrene"). These

descriptions appear in the second chapter under the heading of the Retrogressive Changes. Other war additions are brief accounts of "gassing" in Chapter XIV., page 379, on Diseases of the Respiratory Tract, of "trench nephritis" in Chapter XVI., page 503, on Diseases of the Urinary System, and of "toxic jaundice," from nitro-explosives, in Chapter XV., page 454. It is clear, therefore, that the author has watched closely the bearing of the world-wide war of the twentieth century on pathological research. But he has not ventured to discuss the pathology of war-neurasthenia—as "shell-shock" may, perhaps, with some propriety be called—and even in the case of trench fever, the five lines of letterpress allotted to this affection do not add much to our knowledge of its nature and pathology.

Among the most interesting topics in an interesting volume are discussions on Immunity at the end of Chapter V., on Infection and on Oedema and Dropsy in Chapter VII. As a sample of the author's style, the closing paragraph of Chapter VII. may be quoted:—
"To sum up: in all the forms of oedema or dropsy damage to the capillary endothelium may be presumed, and this damage may be regarded as inducing increased permeability. In some cases retention of sodium chloride, by inducing hydraemia, may materially injure the vascular endothelium and increase permeability. A rise in capillary pressure will, in these circumstances, increase the transudation, but it is not necessary and is often absent. Starling considers that with the increased permeability the ordinary factors of osmosis and filtration are sufficient to cause the abnormal transudation. Some would ascribe a secretory function to the vascular endothelium, and Bolton (*Journ. of Pathol. and Bacteriol.*, XIV., 1909, p. 49) inclines to this view." (Page 223.)

In addition to the foregoing novelties in the present edition, the sections dealing with Weil's disease ("Spirochaetosis icterohæmorrhagica," as Inada and other Japanese investigators have named it), the blood platelets, the

Arneth blood count, Hodgkin's disease, the tuberculous giant-cell, purpura, and cerebro-spinal fever have been extended. Chapter VIII., on Shock and Collapse, has been practically rewritten, in the light of the views propounded by Crile, Henderson, and other modern theorists on the subject.

Primarily intended for "Students of Medicine," this work should fittingly find a place in the shelves of the library of every well-equipped Medical Practitioner.

The Intensive Treatment of Syphilis and Locomotor Ataxia by Aachen Methods. By RICHARD HAYES, M.R.C.S., &c. Second Edition, revised. London : Baillière, Tindall and Cox. 1917. Cr. 8vo. Pp. vi + 88.

THE first edition of this small treatise was published in 1914, and reviewed in the number of this Journal for February, 1915 (Vol. 139, page 108). In that notice it was pointed out that the chief objects of the book are to prove that the Aachen treatment of syphilis is highly efficacious, and that it can be carried out in London. By Aachen methods the author means the inunction of a 33½ per cent. mercurial ointment by the bare hands of a skilled rubber, under proper medical supervision; and, in addition, the use of sulphur water internally and externally, as administered at Aachen. This is the essential thing, or foundation on which treatment is based, adjuncts being used if so indicated.

In his preface to the second edition, Mr. Hayes at the outset emphasises the statement that inunction of mercury must not be regarded in any way a *rival* to the injection of salvarsan (or other trustworthy arsenical preparations). Each has its appropriate sphere, and its inevitable limitations. The author lays stress on the importance of the rubbing being carried out by skilled hands, and four illustrations are inserted in this second

edition to show approximately the relative positions which should be assumed by patient and rubber during treatment.

The author frankly states that the present edition differs little from the first, written three years ago, but he has taken the opportunity of advising that, as modern research points to the advantage of methods still more intensive, the salvarsan injections should be repeated at an interval of seven days, the course consisting of a minimum of three as full intravenous doses of that, or any other reliable, preparation of arsenic as may be considered safe.

The book is well written and beautifully printed, and the enthusiasm of the author is reflected from every page. It is an excellent guide to the successful treatment of syphilis in its acute and chronic phases.

Physical Remedies for Disabled Soldiers. By R. FORTESCUE FOX, M.D. London : Baillière, Tindall & Cox. 1917. Demy 8vo. Pp. xiv + 277.

A USEFUL handbook to a subject of present importance, as a large number of wounded soldiers, although convalescent, are weakened or crippled and unable to resume their place amongst self-supporting workers.

The author has attempted "to collect and present in a convenient form the information which may be useful to those who are engaged in the treatment of soldiers and civilians—by heat and cold in baths, by electricity and radiation, by massage, mechanical apparatus, exercises and medical gymnastics, as well as by medicinal waters and climate in the British health-resorts."

The book is divided into three parts—I. Hydrological remedies and the indications for their use. II. Mechanical and electrical remedies. III. The provision for physical remedies.

Lisdoonvarna and Lucan are mentioned amongst the British sulphur spas, the former for its climate as well

as for its waters. It is noted that the resources of both these spas have been as yet but little developed.

Amongst British marine resorts and climates Queenstown and Glengarriff get unstinted praise; the former is compared to Torquay, and the latter to Falmouth.

Although necessarily condensed, the information given is clear, and sufficient references are given to satisfy those seeking fuller information. The 87 illustrations are well chosen and are helpful to the text.

Three Lectures on the Treatment of Diabetes Mellitus by Alimentary Rest (the "Allen" Treatment). By O. LEYTON, M.D., D.Sc., F.R.C.P.; Physician to the London Hospital. London: Adlard & Son and West Newman, Ltd., Bartholomew Close. 1917. Cr. 8vo. Pp. 64.

As the author tells us in his preface, "this is not a book." It is a reprint from the numbers of the *Clinical Journal* for March, April, and May of the present year, of three lectures which were delivered—presumably at the London Hospital—by Dr. Leyton on a subject which had attracted much attention of late.

The first lecture deals with the topic of the modern treatment of diabetes mellitus—"the name given to a series of diseases in which dextrose appears in the urine, in quantities recognisable by the ordinary tests, whilst the individual is upon a normal diet. . . . This definition excludes pentosuria, lactosuria, and laevulosuria. It includes a condition which some call 'dietetic glycosuria.' " This last term is rejected by Dr. Leyton, who finds himself "in the excellent company of Joslin, of Boston, in refusing to divide diabetes mellitus into two diseases, 'dietetic glycosuria' and 'true diabetes.' " (Page 5.) "Let us," he says, "abolish the term 'dietetic glycosuria' and save life."

In the second lecture the method of finding the

optimum diet for any patient suffering from diabetes mellitus is discussed. It is illustrated by Dr. Leyton's table for finding tolerance for carbohydrate, protein, and fat day by day from the first day after the urine is free from sugar to the fifteenth day from that time. Every seventh day must be a half-ration day according to the menus laid down. The value of these menus in calories ranges from 52 on the first day to 2,226 on the fifteenth day.

The third lecture is brimful of facts based on the author's clinical experiences. Evidence is accumulating, he tells us, that moderate exercise is beneficial and permits an increase of carbohydrate in the diet without the return of sugar in the urine. Activity of the muscles assists oxidation of carbohydrates. The patient should be ordered to take less carbohydrate on those days upon which he is unable to take his accustomed exercise.

These lectures give a very clear and satisfactory account of the "Allen treatment."

Midwifery by Ten Teachers under the direction of COMYNS BERKELEY, M.A., M.D., M.C. (Cantab.), F.R.C.P. (Lond.); Obstetric and Gynæcological Surgeon to the Middlesex Hospital, &c. Edited by COMYNS BERKELEY, H. RUSSELL ANDREWS, and J. S. FAIRBAIRN. Illustrated. Cr. 8vo. Pp. 736 + x. London : Edward Arnold. 1917.

A MIDWIFERY text-book written by ten teachers will no more fulfil its purpose than a cake made by ten cooks. Although "an effort has been made to overcome to some degree the disadvantages of collective authorship," these disadvantages have not been overcome, and the outcome is a book containing much good in an unpractical, muddled state. We intended to review this new work in a meticulous manner, but a careful perusal leaves us with the above stated opinion, and we shall say no more.

British Museum Natural History Economic Series.

No. 4 : Mosquitoes and their relation to Disease, their life history, habits and control. By F. W. EDWARDS, B.A. Pp. 20. 1916. No. 5 : The Bed-bug, its habits and life history, and how to deal with it. By BRUCE F. CUMMINS. Pp. 20. 1917. No. 6 : Species of Arachnida and Cyriopodia (scorpions, spiders, mites, ticks, and centipedes) injurious to man. By STANLEY HIRST. Pp. 60. 1917.

THESE pamphlets maintain the standard set by those on the House-fly, the Louse, and the Flea. They are written in plain language, divided into convenient, well-headed paragraphs, and sufficiently illustrated. Although so short, clearness is not sacrificed for brevity, and they will be found to afford a good working knowledge of how far these insect pests may be combated.

Nos. 4 and 5 of the series cost only one penny each, No. 6 costs sixpence. These pamphlets are, therefore, within the reach of even a very slender purse.

NON-VENEREAL PROSTATITIS.

DR. G. K. SWINBURNE (*New York Medical Record*, Vol. XCI., No. 9) reports some cases of non-venerel prostatitis, a disease which he asserts is almost as common as chronic tonsillitis. The diagnosis is dependent on the absence of gonococci, and the presence of purulent or muco-purulent matter from the urethra on pressure being applied to the prostatic gland. He prescribes massage of the prostate, the instillation of a solution of argyrol through the posterior urethra into the bladder, and the application to the prostate of the high-frequency current. At the end of six months there was a marked improvement in the condition of the patient. In extreme cases an auto-gogenous vaccine is recommended. In chronic prostatitis there may be no gonococci in the discharge, although the disease was the product of venereal infection ; and, so far as the therapeusis of the disease is concerned, the origin matters little, for the treatment in both cases is that of bringing about an aseptic condition of the infected tissues.

PART III. MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

“THE PHYSITIANS HOLIDAY”: *CANICULAR* VACATIONS AND IRISH HEALTH RESORTS.

By JOHN KNOTT, A.M., M.D., Ch.B. & D.P.H. (Univ. Dub.) ;
F.R.C.S.I. ; M.R.C.P.I. ; M.R.I.A., &c.

THE holiday season is again with us—when the coefficient of thermal expansion seems to display a calculability with regard to the total mass of prosperous citizenship almost as definite as in case of bodies of inorganic matter. For the climatic conditions of the dog-day season never fail to produce an oozing of civic prosperity and aristocracy through all the most available pores of the urban integument. Nature demands annual as well as diurnal periodic rest—a fact of which the evidence has been permanently inscribed over the whole surface of our planet—and on both the animal and vegetable kingdoms. And the opportunities have been so definitely provided by the times and the seasons, the days and the years, as to furnish a very plausible suggestion to primitive man of the astrological government of the Universe. The daily and yearly varying influences of the great central source of light and heat were unquestionable. Those of the moon were just as obvious—and decidedly more mysterious ; while the readily-observable phases of that luminary gave untutored man his first suggestion of exercising his limited powers of reckoning in the calculation of recurring periods of time, and the establishment of a regulation 30-day interval. The Chaldeans and the Egyptians were the great original (and enthusiastic) star-gazers, and their knowledge was (at least partially) imbibed by

their Hebrew slaves ; and I may here mention parenthetically that the English translation of the original term applied to the phase-period of the “ Queen of Heaven ” has furnished posterity with one of the record specimens of the *fallacy of equivocation*. For it has credited a famous patriarch with a life period of 969 *years* instead of *moons* ! And those Oriental star-gazing soothsayers observed and baptised the signs of the Zodiac, and carefully tabulated for their own preferential convenience, and that of their successors in the exercise of their sacred craft, their associations with, and their respective influences on, the corresponding sections of the recurring annual cycle—in its varying relationship with terrestrial events and phenomena.

Then one of the most conspicuous of extra-Zodiacal stellar associations was, of course, that of the Dog-star. For in the truly mysterious land of Egypt, over a great portion of the surface of which a drop of rain was hardly ever known to fall, there annually appeared, at the same exact interval from the summer solstice, the longed-for vision above the horizon of the most brilliant of all the fixed stars. And, with a regularity which hardly ever deviated from mathematical precision, the annual swell of the bosom of the Nile proceeded to develop directly in simultaneous coincidence with the manifestation of the presence of its celestial herald—the harbinger of life and plenty to the inhabitants of that country which was so often referred to by the ancient poets as “ the gift of the Nile.” It is, accordingly, easy to comprehend the etymological viewpoint of the native Egyptians (who appreciated, almost to adoration, the devotion and vigilance of their canine contemporaries) which led them to associate the idea of the annual appearance of this star above the horizon with the correspondingly welcome and reliable “ watch-dog’s honest bark.” But every reader who has glanced at the history of etymological research will be prepared for the fact that this account of the origin of the popular epithet was not unanimously accepted. According to Artemidorus, as we learn through the medium of the stately diction of Sherburne : “ The Star *Syrius* (saies he) is the cause of Feavers, and therefore by some call’d the Dog, which is a Creature fierce, and yet fawning, and for that reason $\pi\nu\rho\epsilon\tau\acute{\eta}$ $\delta\mu\omega\tau\omega$, resembled to a Feaver.” But the Egyptians

displayed their perennially grateful recognition (according to George Sandys) in : “that ancient inscription on the Column of *Isis*. *I am Isis the Queen of Egypt instructed by Mercury. The lawes which I have made let no man dissolve. I am the wife of Osyris, the Inventresse of Tillage, and mother to Orus. In Heaven I am the refulgent Dog-starre.*” Thus was the Dog-star worshipped for untold centuries as the luminous celestial transmutation of the soul of *Isis*, the divine patroness who initiated the inhabitants of Egypt into the life-saving art of agriculture. And the date and general influence of the annual visit of this brightest of all fixed stars are thus referred to by the elder Pliny (in the quaint version of the famous “Translator General,” Philemon Holland, Doctor of Physicke) : “the fourth day of July, vpon which day in Egypt the star Procyon, *i.* the fore-runner of the Dog-star Syrius, sheweth in the morning and commeth in very hot and fierce : . . . and sixteen daies before the Calends of August, to wit, the seventeenth of July, the foresaid star Procyon riseth to them in Assyria. The morrow after, which is the 18 day, all Writers in manner doe agree vpon the rising of that significant and notorious signe, which commonly we call the Dog-star ; to wit, when the Sun is entred the first degree of *Leo*, which falleth out to be the 23 day after the Summer Sunstead. And in truth both sea and land do find and feele the arrival or comming of this star, yea, and many a wild beast beside, according as we have shewed already in place convenient. Neither is this starre lesse worshipped and adored than those renowned Planets which carrie the name of gods and goddesses, and have divine honour done vnto them. He it is that inflameth and setteth the Sunne on fire : to him is imputed the greatest cause of that extreame hot weather during the canicular daies. . . . This halfe quarter or six weeks space, is that which determineth of vines and vintage, by the meanes of that star which wee call *Canicula*, the very ruler indeed over Vineyards, and wherevpon dependeth the good or bad season for all our grapes and wine the next yeare. From hence it is, and not otherwise, that the wines are said to be blasted, & the grapes burnt (as it were) to a coale. No haile stormes, no tempest of wind or raine is comparable hereunto, nor doth the like harm to corn and grapes : this causeth many a time scarcitie, and bringeth extream dearth and famine,

which neither haile nor tempest doth. As for those tempests, they indomage haply and hurt some fields here and there : but the blast beforesaid plagueth whole countries, far and neare."

The origin of the word *σείριος* has, as might well be anticipated, furnished a source of considerable anxiety to the astronomical meteorologist. Thus it has been derived from *σείρειν*, to gape ; from the fact that the torrid temperature which accompanies its annual pre-eminence had the effect of compelling dogs to assume that gesture of oppressive weariness. It has also been traced to an ancestral *σειραίνειν*, to make dry ; because its appearance above the horizon was always accompanied with the parching and cracking of the muddy crust of the subjacent earth's surface : " *agente terra per caniculam rimas*" (Vergil). Yet again : from *ξέσις* (= aëstus) ; from its habitual association with torrid climatic phenomena. Still another origin : " *ἀστερέω*, i.e., exinanio ; quia sudere fluxo nos exinaniat "—as we learn from the scholiast of Apollonius. Furthermore : from *Σίρις*, an epithet which the Ethiopians had conferred upon the Nile ; " as if it were *Syodus Niloticum*, by reason of the great affinity between *Nilus* and that star, for in the Dog days that River hath its greatest inundation." And we learn from Salmasius, the powerfully erudite antagonist of the illustrious author of *Paradise Lost*, that : " *Stellam porro, quæ in ore canis, Græci σείριον appellarunt a candore, et luciditate flammæ.*" And he corroborates his statement by quoting Aratus—the favourite poet of Cicero (his translator), and of St. Paul the Apostle who cites him in the statement (so seldom identified !), " for we are all his offspring ":

. . . ὁσ ῥα μάλιστα
Οξεα σειριάει.

Id est, acutissime splendet, et acutissimi est splendoris. The term *σείριον* was used by Æschylus as an epithet of the sun, on account of the brilliancy of its radiations ; and from Sophocles we have *σειρίον κυνὸς δίκην* ; while Ibycus applied the epithet to every brilliant star : " *omnia astra σείρια vocabat ab codem candore lucis.*"

The annual tidal flow and ebb of the silent and mysterious Nile was necessarily one of the most *interesting, physically*, as

it assuredly was *the most most important, economically*, known to the cultivators of the wonderful region from which Greece and Rome originally derived the chief germinal items of their luxuriant mythology. Thus the river below and the star above were almost correspondingly inspiring and productive : in the genesis of philosophic opinion, and stimulation to philosophic research. The post-solstitial approach of Sirius in the mouth of the watch-dog vied in the dignity and importance of the significance of its ascent with the midnight appearance on the horizon of Vindemiatrix, in the left elbow of the headless VIRGO, at the winter "sunstead" of six months later. The former announced the coming re-creation of the country's soil and vegetation by the swell of the heaven-sent stream of the Nile ; the other heralded the annual re-birth and resurrection, from the dark abyssm of the nether (or "other") world, of *Sol invictus* himself, the creator and preserver of all forms of terrestrial life. So we are prepared to find the guiding asterism receive fullest prominence of recognition in even the *Liber primus* of that *divinum et cœlestis rationis opus*, the *Astronomicon* of Manilius :

" Subsequitur rapido contenta canicula cursu,
Qua nullum terris violentius advenit astrum,

.
Bella facit pacemque refert, varieque revertens,
Sic movet, ut videt, mundum, vultuque gubernat.
Magna fides hoc posse, color cursusque micantis
In radios. Vix sole minor, nisi quod procul hærens
Frigida cœruleo contorquet lumina vultu."

An asterism of influence so universal among domains celestial and terrestrial, on things animate and things inanimate, could not fail to arrest the skilled attention of the encyclopædic "Father of Medicine," whose characteristically concentrated aphorism : Πρὸ κυνὸς καὶ ὑπὸ κύνα ἐρνώδεες αἱ φαρμακῆαι, is rendered by Lefebure : *Ante canis ortum, et torrente cane, molestæ sunt purgationes* ; and Englished by Sprengell : "In and a little before the Dog days, Purgations are troublesome." And such pronouncement did not fail to exercise a powerful influence over the medical practice of the cultured areas of Europe for a period of more than two thousand years. Nor did

this constringing dictum escape the critical comment of the author of the famous *Pseudodoxia Epidemica* : “ Now from the rising of this Starre, not cosmically, that is with the Sun, but Heliacally, that is, its emersion from the rayes of the Sunne, the Ancients computed their canicular dayes ; concerning which there generally passeth an opinion, that during those dayes all medication or use of Physick is to be declined, and the cure committed unto Nature, and therefore as though there were any feriation in Nature or justitiums imaginable in professions, whose subject is naturall, and under no intermissive, but constant way of mutation ; this season is commonly termed the Physicians Vacation, and stands so received by most men : which conceit however generall, is not onely erroneous but unnaturall, and subsisting upon foundations either false, uncertaine, mistaken, or misapplied, deserves not of mankind that indubitable assent it findeth.”

And again, in contrasting the appropriate treatment of acute and chronic diseases, we are told of the former that : “ because delay is dangerous, and they arise unto their state before the Dog daies determine, we apply present remedies according unto Indications ; respecting rather the acuteness of the disease, and precipitancy of occasion, then the rising and setting of Stars ; the effects of the one being disputable, of the other assured and inevitable.” Then he further fortifies his radicalism by noting that : “ we finde that wiser Antiquity was not of this opinion, which seven hundred years agoe was rejected by Geminus, a learned Mathematician in his Elements of Astronomy ; wherein he plainly affirmeth, that common opinion made that a cause, which was at first observed but as a sign.”

But the logic of the multicapitate would appear to have been always, and unchangeably, the same—in every race and nation, and during every period of the world’s history. And in strict conformity with its suggestions we have the mediæval construction of the *Goodwin Sands* by the geological influence of Tenterden steeple ; the origin of *Syphilis* from a certain planetary “ conjunction,” of specially malignant influence on human health and vigour, which took place in 1483—the same year which ushered into the world the disturbing personality of Martin Luther ; the cause-and-effect relationship of certain

eclipses and memorable earthquakes ; of comets and political revolutions ; of volcanic eruptions and epidemics ; of sun-spots and cyclones ; of swallows and summer heat ; of microbes and contagious diseases !—And before closing the list of illustrative facts and opinions, I will just point out the curious artistic survival which so often meets the eye of the “general,” and so rarely catches the mind : the association of the Nile flow with the entrance of the Sun into the constellation of LEO has stamped itself in marble and bronze on the majority of the artistic fountains of the civilised world, whose waters are made to spout from the *lion's mouth*—a superficially incongruous partnership of production and distribution !

United experience has always gone to show that this is the proper season for “vacation”—although a large proportion will, fortunately for themselves and their medical advisers, decline to adopt the Hippocratic dictum and declare against the use of all medicine during the dog-day interval of regenerative rest. And the special object of this communication is to wake up the public to the fact that waters of forgotten Irish medicinal springs can compare well with those of Continental Europe. To the mind's eye of many of our insular compatriots, who had long been accustomed to the special favours of Fortune, one of the most irritating of the (negative) penitential exercises imposed by the present circum-Continental blockade is that of complete exclusion from so large a number of the most popular of the Continental Health Resorts which they appreciated so highly—the mensual sojourn at which was regularly looked forward to during eleven months of toil and worry, as the special yearly reward of dutiful attention and self-denying effort. And in case of the more nervous—or, neurasthenic (that is to say, those who most needed and were most likely to benefit by) the annual cyclic change of air and scene, and mental and physical conditions generally—the exclusive blockade is approximately absolute : the idea of mines and torpedoes being now permanently associated with that of going down to the sea in ships. The facts and the outlook are all the more disappointing, or provoking, in presence of an approximately ideal season ; unusually free from suggestion of barometric vagaries or lawless atmospheric

currents. Thus, too, one of the unpleasant results of the present international cataclysm is that many of the hard-worked elderly members of the professional and commercial sections of our Irish urban communities will feel obliged to seek the cyclic repair of the losses due to the prolonged period of mental and physical exertion by the rest and refreshment procurable within our own island group. No wise man neglects to utilise, when available, the most favourable conditions and environment of the crowning function of the annual holiday. The special "favourites of fate" who have been dowered by Nature with the will, and by circumstance with the way, to convert to the best uses the generous supply of the good things of life which have been placed so readily within reach, will not fail to make the periodic effort to re-burnish their capabilities of both exertion and enjoyment; and to wash away any of the inevitable accumulation of catabolic débris—the ash of the furnace of the living organism—the molecular material of which always provides the most fructifying manure for the growth and multiplication of the ever-present and ever-watchful natural enemy: the bacterial parasite.

In the present season, there can be little doubt that many of our legislators who have been so long exhausting every mental and physical function in their devoted endeavours to fulfil the sacred duties which they owe to the land of their birth, and to promote the interests of the respective communities who employ (and pay) them for their wakeful syllogistic defence of their Parliamentary trenches, feel quite acutely the disappointment of not being able to realise the privilege referred to by the immortal Scottish poet; whose contemporary legislator, when set at large by the prorogation of Parliament, immediately crossed the English Channel for a leisurely tour of Continental enjoyment, and:

"Then bouses drumlie German water,
To mak' himsel' look fair an' fatter,
An' cleanse the consequential sorrows.—"

Then with a still greater degree of natural (physiological) affinity are periodically attracted to the vicinity of the sacred springs of noted health-giving localities during the canicular season those upon whom the inevitable approaching infirmities of old age have already commenced to cast their warning

shadows. During the past few (ante-bellum) decades, the direct and increasingly rapid communication between all parts of the civilised world, which had been so effectively (and happily) provided by the means and methods of the steamship and railroad systems, continued to present a perennial inducement to the health-seeker and to the pleasure-seeker (as well as to the votary of science, the philosophic student of human—and the curious gleaner of geographical, geological, meteorological, and ethnographical—data) to place himself periodically at the greatest available distance from the monotonous environment of his routine daily labours—while simultaneously grasping the opportunity to renew his previous vigour of mind and body under the favourable hygienic conditions of temporary retirement.

(*To be continued.*)

FIBROMYOMATA UTERI AND CARDIO-VASCULAR DISEASE.

B. R. McCLELLAN (*Am. Jour. Obs.*, LXXV., 7) states that there can be no doubt that a relationship exists between these two diseases, but the ætiology of the cardio-vascular changes remains as yet in the field of theory, as is evident from the brief summary of suggested causes. (a) Anæmia due to hæmorrhage, the result of fibromyomata uteri; (b) a common cause of the conditions—namely, a fibrosis in the muscularis of the blood vessels; (c) a hyaline degeneration of the blood vessels, due to enlargement of the ovaries; (d) pressure of tumours on large abdominal vessels; (e) increased resistance to circulation caused by the extended area of circulation produced by the tumour as well as by the resistance through a tissue so unyielding as a fibroid tumour; (f) interference with the freedom of the heart and lung action; (g) interference with the alimentary function, whereby nutrition being impaired, toxic matter is absorbed from the bowels; (h) pressure on the kidneys, ureters, and renal vessels; (i) irritation of the cerebro-spinal or sympathetic nervous apparatus, especially the large ganglionic masses belonging to the latter system; (j) a common cause, due to changes in the vasomotor system; (k) abnormalities of metabolism due to hyperfunction of the ovaries; (l) a chemical basis, as a toxæmia from muscle extracts released from the tumour.

B. S.

ROYAL ACADEMY OF MEDICINE IN IRELAND

President—R. D. PUREFOY, M.D., F.R.C.S.I.

General Secretary—J. A. SCOTT, M.D., F.R.C.S.I.

SECTION OF MEDICINE.

President—H. C. DRURY, M.D., F.R.C.P.I.

Secretary—G. E. NESBITT, M.D., F.R.C.P.I.

Friday, May 11, 1917.

THE PRESIDENT in the Chair.

Shell-Shock.

DR. F. C. PURSER read a paper on this subject. Cases of shell-shock, as met with in this country, can be grouped in three classes—(1) Shell-shock proper; (2) traumatic neurosis; (3) mental alienation.

The symptoms of the first class are—(a) Headache, (b) insomnia, (c) dizziness, probably mental confusion, (d) tachycardia, (e) tremor, (f) general mental and physical depression.

Most cases recover fairly with rest, warmth, quiet and occupation. Other symptoms which make the outlook less favourable are—(a) loss of memory, (b) mental confusion, (c) epileptiform attacks, (d) petit mal, (e) profuse sweating.

The author then related the history of a man aged 21, who had been under observation for 16 months. His symptoms were numerous, dumbness and loss of memory being predominant at first. Four months later he recovered speech, and showed “double personality” for three days. Then he went back to the former state, retaining power of speech. One month later onset of melancholia, with suicidal tendencies. Recovery from this on treatment with big doses of thyroid; later, frankly hysterical *astasia* and *abasia*, with very gross tremor and sleeplessness. Loss of memory persisted. Discharged. Last news is that memory is improving and also the power of walking.

THE PRESIDENT said that “family stock” was an important factor in these cases. We must conclude that the shell-shock cases had less stable nervous systems than normal. He

recalled the case of a boy who suddenly developed "fits" after some punishment. The nature of these was quite obscure till it transpired that he had recently seen a case of chorea.

DR. CRAIG had seen a number of these cases, which he agreed were most miserable. Symptoms developed six weeks or so after some shock—for instance, being partially buried. Sensory phenomena were curiously in common, except retinal hyperæsthesia. Officers frequently exhibited some of the symptoms of exophthalmic goitre. With regard to treatment, he had not much faith in suggestion, but had found ionisation often useful.

COLONEL CLARKE emphasised twitching of the face as an important sign. Sweating was very marked. It should be remembered that many of the cases were miners in civil life, and might therefore exhibit nystagmus due to their previous occupation.

CAPTAIN LAW frequently found accidental burial the exciting cause. He considered "suggestion" useless, and recommended quiet surroundings.

SIR JOHN MOORE commented on the tendency to relapse and the value of suggestion in treatment.

DR. CRAWFORD thought brain concussion largely accountable. His own experience of shell-fire resembled the effects of a kick on the head.

DR. NESBITT asked whether such cases ever occurred in civil life; and, if so, would they not be classed as mental.

DR. PURSER, in reply, agreed that in ordinary cases sensory symptoms did not occur, but in more severe they did. As regards treatment, the men ought to be employed, but kept out of touch with war matters. He still had some faith in suggestion. He remembered two cases in which civilians were very similar—one developed exophthalmic goitre, the other was regarded as insane. He thought some organic brain lesion was probably present, as he had seen somewhat similar symptoms in cases of injury to the skull.

Nephritis after Burns.

SIR JOHN MOORE submitted a clinical record of the fatal illness of an aged medical practitioner, who was seriously

burned about the back of the chest and over the shoulders while incautiously standing with his back to the fire in his bedroom, on a cold morning last March, clad only in his night-shirt, which took fire. The patient was 87 years of age, and the burns were of the third degree. Ten days after the accident, that is, on March 20th, the temperature, which had been coming down gradually, rose to 102.5° in the forenoon, the urine became scanty, and deposited urates in abundance. Its reaction was acid; specific gravity, 1022; moderately albuminous, but free from sugar. The microscope resolved a considerable and heavy deposit into numerous granular tube-casts and vast numbers of spherules of urate of sodium and of colourless uric acid, as well as hexagons of the same acid. The patient's state now became serious. His mental and bodily powers ebbed fast. The last phase was ushered in by a violent shivering fit on the afternoon of March 26th. This was quickly followed by a rise of temperature to 105°, and the end came at 3 a.m. on March 28th, after a nephritis of 10 days' duration and on the twentieth day from the accident. Sir John Moore showed drawings of the rare form of uric acid observed in this case. The paraffin pigment introduced some years ago by Dr. Barthe de Sandfort, of Paris, under the name of "ambrine," and modified more recently by Lieut.-Col. A. J. Hull, F.R.C.S., R.A.M.C., was applied by Lieut.-Col. William Taylor, P.R.C.S.I., who took surgical charge of the patient.

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EUGENICS.

AN animal gains in mental or physical power by doing mental or physical work, and that gain is transmitted to offspring produced after the gain is made. The evidence for that lies in the fact that we never get improvement in power from generation to generation, unless each generation in turn does more than the normal amount of work before reproducing. There is no case of improvement coming from two generations of idle or young parents.—C. L. Redfield (*New York Medical Record*, Vol. XCI., No. 16).

SANITARY AND METEOROLOGICAL NOTES.

VITAL STATISTICS.

For four weeks ending Saturday, July 14, 1917.

IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended Saturday, July 14, 1917, in the Dublin Registration Area and the eighteen principal provincial Urban Districts of Ireland was 13.6 per 1,000 of the aggregate population, which for the purposes of these returns is estimated at 1,127,268. The deaths from all causes registered in the week ended Saturday, July 14, and during the period of four weeks ended on that date, respectively, were equal to the following annual rates per 1,000 of the population :—Nineteen Town Districts, 13.6 and 13.8 ; Dublin Registration Area, 15.0 and 14.9 ; Dublin City, 15.7 and 16.0 ; Belfast, 14.7 and 12.9 ; Cork, 8.2 and 16.2 ; Londonderry, 10.4 and 13.0 ; Limerick, 5.4 and 10.8 ; and Waterford, 5.7 and 9.0.

The deaths from certain epidemic diseases—namely, enteric fever, typhus, small-pox, measles, scarlet fever, whooping-cough, diphtheria, dysentery, and diarrhoeal diseases—registered in the nineteen town districts during the week ended Saturday, July 14, 1917, were equal to an annual rate of 0.6 per 1,000. Among the 111 deaths from all causes in Belfast were 1 from measles, 2 from whooping-cough, and 1 from diarrhoea and enteritis in a child under 2 years.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock and Kingstown. The population of the Area is 399,000.

In the Dublin Registration Area the births registered during the week ended July 14, 1917, amounted to 180—97 boys and 83 girls, and the deaths to 130—65 males and 65 females.

DEATHS.

The deaths registered, omitting the deaths (numbering 15) of persons admitted into public institutions from localities outside the Area represent an annual rate of mortality of 15.0 per 1,000 of the population. The rate for all deaths registered during the twenty-eight weeks of 1917 was 23.9, while in the corresponding period of the preceding ten years 1907-1916, it had been 24.2.

The 115 deaths appertaining to the Area included 4 from whooping-cough and 4 from diarrhoeal diseases, all of children under 2 years old. In the three preceding weeks deaths from whooping-cough had numbered 0, 2, and 3, and deaths from diarrhoeal diseases in children under 2 years, 1, 3, and 2, respectively.

Tuberculosis caused 23 deaths, as against 50, 23 and 31, respectively, in the three weeks preceding. Of the 23 deaths ascribed to tuberculosis, 18 were referred to pulmonary tuberculosis, 1 to tubercular meningitis, 1 to peritonitis, and 3 to other forms of tuberculosis.

Eleven deaths were caused by cancer, 13 by pneumonia (3 by broncho-pneumonia, 3 by lobar pneumonia, and 7 by pneumonia, type not distinguished); 10 by organic diseases of the heart, and 10 by bronchitis.

Among deaths of infants under one year old, 1 was ascribed to convulsions, 3 were ascribed to premature birth, 2 to congenital debility, and 1 to congenital malformation. A child aged 1 year and 10 months died of "accidental burns."

Twenty-seven of the deaths registered during the week appertaining to the Area were of children under 5 years of age, 16 being infants under one year, of whom 8 were under one month old. Thirty-one deaths of persons aged 65 or upwards were registered, including 23 deaths of persons of 70 years or upwards.

Of the 115 recorded deaths 49 occurred in hospitals and other public institutions.

STATE OF INFECTIOUS DISEASES.

The following returns of the number of cases of Infectious Diseases notified under the "Infectious Disease (Notification)

Act, 1889," and the "Tuberculosis Prevention (Ireland) Act, 1908," have been furnished by the respective sanitary authorities:—

TABLE I.—SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area—(viz., the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock and Kingstown), and in the Cities of Belfast, Cork, Londonderry, Limerick, and Waterford, during the week ended July 14, 1917, and in each of the preceding three weeks.

A dash (—) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Measles	Rubella or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain) a	Enteric or Typhoid Fever	Erysipelas	Puerperal Fever	Whooping-cough	Cerebro-spinal Fever	Diarrhoeal Diseases	Pulmonary Tuberculosis	Total
City of Dublin	June 23	—	—	2	—	—	1	—	—	10	1	—	—	—	—	33	36
	June 30	—	—	3	—	—	1	—	—	6	—	—	—	—	—	27	42
	July 7	—	—	6	—	—	—	—	—	1	—	—	—	—	—	14	27
	July 14	—	—	4	—	—	—	—	—	—	—	—	—	—	—	8	13
Rathmines and Rathgar Urban District	June 23	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1
	June 30	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	2
	July 7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	July 14	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Pembroke Urban District	June 23	—	1	—	—	—	—	—	—	—	—	—	8	—	—	—	9
	June 30	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
	July 7	5	3	1	—	—	—	—	—	—	—	—	13	—	—	—	22
	July 14	1	—	1	—	—	—	—	—	—	—	—	8	—	—	—	11
Blackrock Urban District	June 23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	June 30	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	July 7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	July 14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Kingstown Urban District	June 23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	June 30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	July 7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	July 14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City of Belfast	June 23	—	—	8	—	—	—	—	—	5	1	—	—	—	—	—	17
	June 30	—	—	8	—	—	—	—	—	4	—	—	—	—	—	—	14
	July 7	—	—	1	—	—	—	—	—	3	1	—	—	—	—	—	6
	July 14	—	—	9	—	—	—	—	—	4	3	1	—	—	—	—	20
City of Cork	June 23	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1b
	June 30	1	—	—	1	—	—	—	—	—	1	—	—	—	—	—	3
	July 7	2	—	—	1	—	—	—	—	—	—	—	—	—	—	—	3b
	July 14	—	—	1	—	—	—	—	—	—	1	—	—	—	—	—	2b
City of Londonderry	June 23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6
	June 30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	July 7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	July 14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City of Limerick	June 23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8
	June 30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3c
	July 7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
	July 14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1c
City of Waterford	June 23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	June 30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	July 7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	July 14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1

a Continued fever.

b Not including one case of varicella.

c Not including one case of measles.

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

Table II. exhibits the number of cases of certain infectious diseases treated in the Dublin Hospitals during the week ended July 14, 1917, and the number under treatment at the close of each of the three preceding weeks.

TABLE II.

Diseases	No. of Cases in Hospital at close of the week ended			Week ended July 14.			
	June 23	June 30	July 7	No. admitted	Discharged	Died	No. under treatment at close of week
Enteric Fever	8	16	22	1	3	—	20
Typhus	—	—	—	—	—	—	—
Small-pox	—	—	—	—	—	—	—
Measles	31	30	39	11	8	—	42
Scarlet Fever	29	26	33	5	6	—	32 ^a
Diphtheria	18	18	18	2	4	—	16
Pneumonia	29	27	28	17	9	—	36

* Exclusive of 10 patients in "Beneavin," Glasnevin, Dublin, the Convalescent Home of Cork Street Fever Hospital.

From this Table it appears that the cases admitted to hospital during the week ended July 14, and the cases under treatment at its close, respectively, were as follows:—Enteric fever, 1 and 20; measles, 11 and 42; scarlet fever, 5 and 32 (exclusive of 10 convalescents at Beneavin, the Convalescent Home of Cork Street Hospital); and diphtheria, 2 and 16. Seventeen cases of pneumonia were admitted during the week, and 36 remained under treatment at its close.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, July 14, in 96 large English towns (including London, in which the rate was 12.1) was equal to an average annual death-rate of 11.7 per 1,000 persons living. The average rate for 16 principal towns of Scotland was 13.7 per 1,000, the rate for Glasgow being 12.0, and that for Edinburgh 14.3.

INFECTIOUS DISEASES IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell-Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended July 14. From this Report it appears that of 42 cases notified, 15 were of scarlet fever, 12 of pulmonary tuberculosis, 5 of other forms of tuberculosis, 7 of diphtheria, 2 of erysipelas, and 1 of cerebro-spinal fever. Among the 373 cases of infectious diseases in hospital at the close of the week were 150 of pulmonary tuberculosis, 91 of scarlet fever, 55 of measles, 40 of diphtheria, 11 of whooping-cough, 10 of cerebro-spinal fever, 1 of erysipelas, 1 of enteric fever, and 1 of puerperal fever.

VITAL STATISTICS.

For four weeks ending Saturday, August 11, 1917.

IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended Saturday, August 11, 1917, in the Dublin Registration Area and the eighteen principal provincial Urban Districts of Ireland was 12.7 per 1,000 of the aggregate population, which for the purposes of these returns is estimated at 1,127,268. The deaths from all causes registered in the week ended Saturday, August 11, and during the period of four weeks ended on that date, respectively, were equal to the following

annual rates per 1,000 of the population :—Nineteen Town Districts, 12.7 and 12.9 ; Dublin Registration Area, 15.0 and 14.6 ; Dublin City, 15.6 and 15.0 ; Belfast, 11.7 and 11.5 ; Cork, 15.6 and 14.7 ; Londonderry, 3.9 and 8.8 ; Limerick, 19.0 and 11.9 ; and Waterford, 3.8 and 9.5.

The deaths from certain epidemic diseases—namely, enteric fever, typhus, small-pox, measles, scarlet fever, whooping-cough, diphtheria, dysentery, and diarrhoeal diseases—registered in the nineteen town districts during the week ended Saturday, August 11, 1917, were equal to an annual rate of 1.5 per 1,000. Among the 88 deaths from all causes in Belfast were 1 from measles, 1 from whooping-cough, and 2 from diarrhoea and enteritis—one of them in a child under 2 years. The 14 deaths from all causes registered in Limerick included 1 from enteric fever.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock and Kingstown. The population of the Area is 399,000.

In the Dublin Registration Area the births registered during the week ended August 11, 1917, amounted to 124—77 boys and 47 girls, and the deaths to 121—58 males and 63 females.

DEATHS.

The deaths registered, omitting the deaths (numbering 6) of persons admitted into public institutions from localities outside the Area represent an annual rate of mortality of 15.0 per 1,000 of the population. The rate for all deaths registered during the thirty-two weeks of 1917 was 22.9, while in the corresponding period of the preceding ten years, 1907-1916, it had been 23.4.

The 115 deaths appertaining to the Area included 1 from measles, 1 from whooping-cough, 2 from diphtheria, 2 from influenza, 1 from cerebro-spinal meningitis, and 21 from diarrhoeal diseases, including 18 of children under 2 years old. In the three preceding weeks deaths from measles had

numbered 1, 2, and 0, deaths from whooping-cough 1, 3, and 2, and deaths from diarrhoeal diseases 0, 4, and 15, respectively. One death from cerebro-spinal meningitis had been registered in the week ended July 28, but no deaths from either diphtheria or influenza had been recorded in the 3 previous weeks.

Tuberculosis caused 19 deaths, as against 27, 23, and 24, respectively, in the three weeks preceding. Of the 19 deaths ascribed to tuberculosis, 11 were referred to pulmonary tuberculosis, 2 to tubercular meningitis, 2 to abdominal tuberculosis, and 4 to other forms of tuberculosis.

Six deaths were caused by cancer, 4 by pneumonia (1 by broncho-pneumonia, 1 by lobar pneumonia, and 2 by pneumonia, type not distinguished); 5 by organic diseases of the heart, and 7 by bronchitis.

Among deaths of infants under one year old, 3 were ascribed to premature birth, 2 to congenital debility. Four deaths were due to violence, including one death by drowning and 1 by gun shot wound.

Forty of the deaths registered during the week appertaining to the Area were of children under 5 years of age, 24 being infants under one year, of whom 3 were under one month old. Twenty-four deaths of persons aged 65 or upwards were registered, including 18 deaths of persons of 70 years or upwards.

Of the 115 recorded deaths 48 occurred in hospitals and other public institutions.

STATE OF INFECTIOUS DISEASES.

The following returns of the number of cases of Infectious Diseases notified under the "Infectious Disease (Notification) Act, 1889," and the "Tuberculosis Prevention (Ireland) Act, 1908," have been furnished by the respective sanitary authorities:—

TABLE I.—SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area—(viz., the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock and Kingstown), and in the Cities of Belfast, Cork, Londonderry, Limerick, and Waterford, during the week ended August 11, 1917, and in each of the preceding three weeks.

A dash (—) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Measles	Rubella or Epidemic Rose Rash	Scarlet Fever	Typhim	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain) ^a	Enteric or Typhoid Fever	Erysipelas	Puerperal Fever	Whooping-cough	Cerebro-spinal Fever	Diarrhoeal Diseases	Pulmonary Tuberculosis	Total	
		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
City of Dublin	July 21	—	—	—	—	—	4	—	—	—	—	—	—	—	—	6	11	
	July 23	—	—	—	—	—	2	—	—	—	—	—	—	—	—	14	19	
	Aug. 4	—	—	—	—	—	4	—	—	—	—	—	—	—	—	7	12	
	Aug. 11	—	—	—	—	—	3	—	—	—	—	—	—	—	—	12	17	
Rathmines and Rathgar Urban District	July 21	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
	July 23	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	1
	Aug. 4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	
	Aug. 11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Pembroke Urban District	July 21	1	—	—	—	—	—	2	—	—	—	—	—	1	—	—	1	
	July 23	2	—	—	—	—	—	1	—	—	—	—	—	8	—	—	8	
	Aug. 4	1	—	—	—	—	—	—	—	—	—	—	—	5	—	—	9	
	Aug. 11	—	—	—	—	—	—	—	—	—	—	—	—	13	—	—	14	
Blackrock Urban District	July 21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	July 23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	Aug. 4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	Aug. 11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Kingstown Urban District	July 21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	July 23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	Aug. 4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	Aug. 11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
City of Belfast	July 21	—	—	—	13	—	—	1	—	—	—	—	—	—	—	—	17	
	July 23	—	—	—	3	—	—	1	—	—	—	—	—	—	—	—	8	
	Aug. 4	—	—	—	5	—	—	1	—	—	—	—	—	—	—	—	14	
	Aug. 11	—	—	—	3	—	—	2	—	—	—	—	—	—	—	—	7	
City of Cork	July 21	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	5b	
	July 23	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	9b	
	Aug. 4	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	15	
	Aug. 11	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	9	
City of Londonderry	July 21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	July 23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	Aug. 4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	Aug. 11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
City of Limerick	July 21	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	3	
	July 23	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	2	
	Aug. 4	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	
	Aug. 11	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	
City of Waterford	July 21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	July 23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	Aug. 4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	Aug. 11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

^a Continued fever.

^b Not including one case of varicella

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

Table II. exhibits the number of cases of certain infectious diseases treated in the Dublin Hospitals during the week ended August 11, 1917, and the number under treatment at the close of each of the three preceding weeks.

TABLE II.

Diseases	No. of Cases in Hospital at close of the week ended			Week ended August 11.				No. under treat- ment at close of week
	July 21	July 28	Aug. 4	No. admitted	Dis- charged	Died		
Enteric Fever	22	24	21	1	5	—	—	17
Typhus	—	1	1	—	1	—	—	—
Small-pox	—	—	—	—	—	—	—	—
Measles	—	37	34	2	11	—	—	21
Scarlet Fever	27	21	23	2	3	—	—	22 ^a
Diphtheria	—	17	18	4	5	2	—	17
Pneumonia	—	34	34	10	10	3	—	28

^a Exclusive of 4 patients in "Beneavin," Glasnevin, Dublin, the Convalescent Home of Cork Street Fever Hospital.

From this Table it appears that the cases admitted to hospital during the week ended August 11, and the cases under treatment at its close, respectively, were as follows:—Enteric fever, 1 and 17; measles, 2 and 21; scarlet fever, 2 and 22 (exclusive of 4 convalescents at Beneavin, the Convalescent Home of Cork Street Hospital); and diphtheria, 4 and 17. Ten cases of pneumonia were admitted during the week, and 28 remained under treatment at its close. Of the deaths in hospital 2 were from diphtheria and 3 from pneumonia.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, August 11, in 96 large English towns (including London, in which the rate was 10.3) was equal to an average annual death-rate of 10.3 per 1,000 persons living. The average rate for 16 principal towns of Scotland was 11.2 per 1,000, the rate for Glasgow being 11.3, and that for Edinburgh 11.2.

INFECTIOUS DISEASES IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell-Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended August 11. From this Report it appears that of 42 cases notified, 21 were of diphtheria, 5 of scarlet fever, 4 of pulmonary tuberculosis, 8 of other forms of tuberculosis, 3 of erysipelas, and 1 of cerebro-spinal fever. Among the 322 cases of infectious diseases in hospital at the close of the week were 136 of pulmonary tuberculosis, 79 of scarlet fever, 39 of diphtheria, 21 of measles, 10 of whooping-cough, 7 of erysipelas, 6 of cerebro-spinal fever, and 2 of puerperal fever.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of July, 1917.

Mean Height of Barometer,	-	-	30.050 inches.
Maximal Height of Barometer (1st, at 9 a.m.),	30.348	„	
Minimal Height of Barometer (18th, at 2 30 p.m.)	29.371	„	
Mean Dry-bulb Temperature,	-	-	60.0°.
Mean Wet-bulb Temperature,	-	-	56.6°.
Mean Dew-point Temperature,	-	-	53.7°.
Mean Elastic Force (Tension) of Aqueous Vapour,	.412	inch.	
Mean Humidity,	-	-	80.1 per cent.
Highest Temperature in Shade (on 13th),	-	75.5°.	
Lowest Temperature in Shade (on 1st),	-	45.4°.	
Lowest Temperature on Grass (Radiation) (1st),	41.7°.		
Mean Amount of Cloud,	-	-	53.5 per cent.
Rainfall (on 12 days),	-	-	1.855 inches.
Greatest Daily Rainfall (on 20th),	-	-	0.351 inch.
General Directions of Wind,	-	-	E.N.E., W.S.W.

Remarks.

July, 1917, was a fine and summer-like month. Very dry weather prevailed in the Dublin district during the first half, the rainfall being only .032 inch up to the 15th. Afterwards heavy thunder showers prevailed on many afternoons, and the month closed with two thunderstorms on the evening of the 31st. These disturbances travelled along the east coast from north to south. The only "wet day" was the 18th, when an atmospheric depression of considerable size and intensity passed right over Ireland, in an easterly direction. Very little rain fell by night—only 0.366 inch being measured between 9 p.m. and 9 a.m. This moderate precipitation by night included 0.220 inch received in a thunderstorm at 9 45 p.m. of the 31st.

In the dry part of the month easterly winds prevailed until the 11th, and temperature was below the average. A southerly air-current set in on that day and temperature rose fast. The warmest days were the 13th (M.T. = 67.7°) and the 26th (M.T. = 69.0°).

The middle and later stages of the total eclipse of the moon on the evening and night of the 4th were well seen in Dublin.

In Dublin the arithmetical mean temperature (61.4°) was 0.9° above the average of the 35 years, 1871–1905 (60.5°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 60.0°. In the fifty years ending with 1915, July was coldest in 1879 ("the cold year") (M.T. = 57.2°). It was warmest in 1905 (M.T. = 63.8°); and in 1887 (M.T. = 63.7°). In 1913 the M.T. was 60.5°, in 1914 60.0°, in 1915, 58.1°, and in 1916, 60.2°.

The mean height of the barometer was 30.050 inches, or 0.135 inch above the corrected average value for July—namely, 29.915 inches. The mercury rose to 30.348 inches at 9 a.m. of the 1st, and fell to 29.371 inches at 2 30 p.m. of the 18th. The observed range of atmospheric pressure was, therefore, 0.977 inch.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 60.0°, or 3.5° above the value for June, 1917. Using the formula *Mean Temp. = Min. + (Max. — Min.) × .465*, the value was 61.0°,

or 0.9° above the average mean temperature for July, calculated in the same way, in the thirty-five years, 1871-1905, inclusive (60.1°). The arithmetical mean of the maximal and minimal readings was 61.4° , compared with a thirty-five years' average of 60.5° . On the 13th the thermometer in the screen rose to 75.5° —wind, S.W. ; on the 1st the screened thermometer fell to 45.4° —wind, E. The minimum on the grass was 41.7° , on the 1st.

The rainfall was 1.855 inches, distributed over 12 days. The average rainfall for July in the thirty-five years, 1871-1905, inclusive, was 2.680 inches, and the average number of rain-days was 17. The rainfall, therefore, and also the rain-days were much below the average. In 1880 the rainfall in July was very large—6.087 inches on 24 days ; in 1915, 5.774 inches fell on 24 days ; in 1896, also, 5.474 inches fell on 18 days. On the other hand, in 1870, only 0.539 inch was measured on 8 days ; in 1869 the fall was only 0.739 inch on 9 days ; and in 1868, 0.741 inch fell on but 5 days. In 1916, 2.139 inches fell on 13 days.

High winds were noted in Dublin on only 4 days. Temperature reached or exceeded 70° in the screen on 9 days, compared with 9 days in 1916, only 1 day in 1915, 3 days in 1914, 5 days in 1913, 4 days in 1912, 21 days in 1911, 4 days in 1910, 3 days in 1909, 9 days in 1908 and also in 1907, 10 in 1906, 17 in 1905, and 10 in 1904. The thermometer failed to reach 60° on the 5th.

Thunder occurred on the afternoons of the 20th, 23rd, 24th and 31st. Lightning was seen on the nights of the 17th and 31st. There was a solar halo on the 6th and again on the 13th. Fog prevailed on the 5th and 6th.

The rainfall in Dublin during the seven months ending July 31st amounted to 13.315 inches on 100 days, compared with 19.150 inches on 136 days in 1916, 16.882 inches on 118 days in 1915, 11.244 inches on 114 days in 1914, 15.731 inches on 117 days in 1913, 16.811 inches on 127 days in 1912, 10.723 inches on 94 days in 1911, 21.032 inches on 127 days in 1910, 15.377 inches on 106 days in 1909, 13.809 inches on 120 days in 1908, 14.358 inches on 127 days in 1907, 13.664 inches on 122 days in 1906, 11.022 inches on 109 days in 1905, 13.905 inches on 117 days in 1904, 19.072 inches on 131 days in 1903,

15.507 inches on 115 days in 1902, 11.432 inches on 93 days in 1901, only 7.935 inches on 80 days in 1887, and a thirty-five years' (1871-1905) average of 14.710 inches on 113 days.

At the Normal Climatological Station in Trinity College, Dublin, the observer, Mr. Henry Allman Lavelle, reports that the mean height of the barometer was 30.068 inches, the range of pressure being from 30.360 inches at 9 a.m. of the 5th to 29.494 inches (?) at 9 a.m. of the 18th. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 61.3° . The arithmetical mean of the daily maximal and minimal temperatures was 61.4° , the mean maximum being 68.3° , and the mean minimum 54.4° . The screened thermometers rose to 78° on the 13th and 26th and fell to 44° on the 1st. On the 2nd the grass minimum was 38° . Rain fell on 13 days to the amount of 1.758 inches, the greatest fall in 24 hours being 0.355 inch on the 20th. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 197.9 hours, of which 13.4 hours occurred on the 1st. The mean daily duration was 6.4 hours. In July, 1911, there were 221.8 hours of bright sunshine; in 1912, 153.0 hours; in 1913, 157.2 hours; in 1914, 147.7 hours; in 1915, 117.7 hours, and in 1916, 142.5 hours. The mean sub-soil temperatures at 9 a.m. were—at 1 ft., 62.0° ; at 4 ft., 57.5° .

Captain Edward Taylor, D.L., recorded a rainfall of 2.55 inches on 15 days at Ardgillan, Balbriggan, Co. Dublin. This measurement was 0.15 inch below the average, and the rain-days were equal to the average. The largest rainfall in 24 hours was 0.58 inch on the 18th. The July rainfall at Ardgillan in recent years has ranged from 7.03 inches on 18 days in 1896 to 0.52 inch on 5 days in 1898. Since January 1, 1917, 14.52 inches of rain have fallen at Ardgillan on 112 days, the precipitation being 0.85 inch under the average and the rain-days 4 in excess. The shade temperature in July ranged from 73.2° on the 26th to 43.8° on the 1st.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was 2.255 inches on 12 days. The

largest daily fall was 0.47 inch on the 20th. In the 18 days ended July 14 there was only 1 rain-day on which .095 inch fell—namely, July 8th. The average July rainfall at Malahide in the 12 years ended with 1915 was 2.47 inches on 16 days. The rainfall in the 7 completed months of 1917 amounted to 11.83 inches on 97 days.

The rainfall at Stirling, Clonee, Co. Meath, according to Mr. J. Pilkington's return, was 1.46 inches on 12 days, the largest fall on any one day being 0.38 inch on the 18th. Up to the 15th only 0.01 inch fell. From January 1st to July 31st, 14.06 inches of rain fell on 106 days at Stirling.

At the Ordnance Survey Office, Phoenix Park, rain fell on 12 days to the amount of 1.70 inches (43.1 nim.), the greatest rainfall in the 24 hours being 0.366 inch (9.4 mm.) on the 20th. The total duration of bright sunshine was 214.9 hours, the greatest daily sunshine being 14.7 hours on the 1st. The thermometer rose to 75.7° in the screen on the 13th, and fell to 36.4° on the 1st, when the grass minimum was 31.3°.

Miss Mary Love reports a rainfall of 1.44 inches on 11 days at Cheeverstown Convalescent Home, Clondalkin, Co. Dublin. The heaviest fall in 24 hours was 0.29 inch on the 24th.

Mr. F. Dudley Joynt recorded a rainfall of 1.365 inches on 12 days at 89 Anglesea Road, Donnybrook, Dublin. The greatest fall in 24 hours was 0.245 inch, which occurred on the 24th. Since January 1, 1917, the rainfall at this station amounts to 11.465 inches on 90 days.

At Marino, Killiney, Co. Dublin, Mr. W. J. M'Cabe, observer for the Right Hon. Laurence Waldron, D.L., registered a rainfall of 0.99 inch on 9 days, the heaviest fall in 24 hours being 0.36 inch on the 20th. The average rainfall in July in the twenty-four years, 1885-1908, at Killiney (Cloneevin) was 2.408 inches on 15 days.

Mr. Harold Fayle forwards the following weather report for July from Sandford Lodge, Ranelagh, Dublin :—

Mean corrected Height of Barometer,	-	30.051 inches.
Highest corrected Reading (5th, 8 a.m.),	-	30.32 ,,
Lowest corrected Reading (18th, 8 a.m.),	-	29.52 ,,
Mean Dry-bulb Temperature, -	-	60.3°.
Mean Wet-bulb Temperature,	-	57.5°.

Mean Maximal Temperature, -	-	-	68.8°.
Mean Minimal Temperature -	-	-	52.4°.
Arithmetical Mean Temperature, -	-	-	60.6°.
Highest Temperature in Screen (13th),	-	-	78°.
Lowest Temperature in Screen (1st, 2nd),	-	-	39°.
Lowest Temperature on Grass (1st), -	-	-	30°.
Nights of Ground Frost,	-	-	1
Rainfall (on 12 days), -	-	-	1.56 inches.
Greatest Daily Rainfall (23rd),	-	-	0.34 ,,
Mean Amount of Cloud,	-	-	59.8 per cent.
Days of Clear Sky, -	-	-	4
Days of Overcast Sky,	-	-	8
General Direction of Wind, -	-	-	NE.

Maximal temperature reached 70° or over on 14 days ; it did not reach 60° on two days, the 5th and 8th, on the former of which a sea-fog prevailed.

At Auburn, Greystones, Co. Wicklow, the observer for Mrs. Sydney O'Sullivan recorded a rainfall of 1.64 inches on 9 days, the largest measurement in 24 hours being 0.41 inch on the 20th.

Dr. John H. M. Armstrong, M.B., reports that the rainfall at Coolagad, Greystones, Co. Wicklow, was 1.36 inches on 11 days, the maximal daily fall being 0.32 inch on the 15th. Since January 1, 1917, the rainfall at that station equals 13.06 inches on 104 days. Distant thunder and lightning were observed at 9 45 p.m. of the 31st, followed by heavy showers, and thunder occurred at 7 p.m. of the 15th. The Welsh mountains were seen at 6 30 p.m. of that day. The thermometer rose to 73° on the 26th and fell to 49° on the 1st and 16th. Fog prevailed on the 5th, 21st, 24th and 25th, and again at 7 30 p.m. of the 27th.

At the Royal National Hospital for Consumption for Ireland, Newcastle, Co. Wicklow, Dr. Francis O'B. Kennedy, Resident Medical Superintendent, reports a rainfall of 2.04 inches on 11 days, the greatest daily rainfall being 0.88 inch on the 20th. The screened thermometers rose to 76° on the 26th and fell to 41° on the 1st. The mean maximal temperature was 66.9°, the mean minimum was 51.6°, and the mean temperature 59.3°.

At the Rectory, Dunmanway, Co. Cork, the Rev. Canon Arthur Wilson recorded a rainfall of 4.15 inches on 23 days. The rainfall was 0.59 inch over the average for July. The heaviest falls in 24 hours were 0.87 inch on the 17th and 0.78 inch on the 2nd. It was a changeable month. Bright warm days with occasional showers were often followed by heavy rain at night. The 17th was very wet all day and night. Southerly winds prevailed till the 28th, northerly winds took their place on the last 3 days. A frost occurred on the night of the 29th. The rainfall at Dunmanway for the 7 completed months of 1917 amounts to 23.65 inches, compared with an average of 32.23 inches. It was therefore 8.58 inches in defect. The rain-days in 1917 have been 117 compared with an average of 116.

As a rule the rainfall at Dunmanway in July is less than that in any other month. July, 1915, had been the wettest July which had occurred in eleven years. The rainfall of that month was 7.37 inches on 21 days. In July, 1916, only 0.78 inch of rain fell on 9 days, constituting a record for this month.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS

Genatosan—the Genuine Original Sanatogen.

THIS is the new name which will later on be given by its British owners and manufacturers to the well known medicated food Sanatogen. It was, of course, to pre-war Sanatogen of German ownership that reference was made in the second paragraph of the notice of "Bynogen," which was published in the August number of this Journal (page 136). We regret that an unintentional injustice was done to the British owners of Sanatogen by the somewhat ambiguous wording of that paragraph. In all fairness to an exclusively British firm we desire to remove any erroneous impression which may have been thereby produced on our readers' minds with reference to the reputation and popularity of Sanatogen. It cannot be too widely known that this British firm now owns the genuine original Sanatogen, manufactured in the same British factory, by the same unique processes and machinery, and by the same British chemical and technical staff that the German firm formerly employed. We think, moreover, that the new proprietors are well advised in their decision to re-name the product Genatosan in the near future.

PERISCOPE.

THE TREATMENT OF SCIATICA BY APPLICATION OF STRONG HYDROCHLORIC ACID.

DR. HARRINGTON SAINSBURY has described in *The Lancet*, of June 16th, remarkable results from the treatment of neuritis, and particularly of sciatica, by the application of strong hydrochloric acid to the skin along the line of the inflamed nerve. He ascribes the treatment to Dr. Hugh Wingfield, but we may point out that it is not new, and was noticed in our columns nearly 20 years ago (*The Lancet*, November 20th, 1897, p. 1338) in an annotation on an article which was published in the *Semaine Médicale*. We may recall the circumstances, as this valuable remedy seems in the interval to have been almost completely forgotten. Moreover, the manner of its discovery is interesting. This was due to an accident founded on a blundering ignorance of chemistry. A man who had suffered for many years from sciatica was treated in an Algerian hospital by hypodermic injections of salt and water, but without much success. After he had left he bethought him that perhaps the salt was not strong enough, and that a stronger preparation of salt might be successful. He therefore procured some "spirit of salt" (strong hydrochloric acid) and painted it on the skin. He got rid of his long-standing trouble in a few days. Shortly afterwards he attended the hospital for some other affection, and confided in Dr. Bourlier, professor of therapeutics, whom he saw, how he had got rid of his sciatica. Dr. Bourlier thought the plan worthy of trial, and employed it in several cases with invariable success. A thesis was then published on the subject by Dr. C. Gennatas, of Montpelier, on the basis of a dozen cases of sciatica, all of which were completely relieved by this means. As far as we know, only one paper on the subject has been published in this country. After the appearance of our annotation, Mr. R. A. Bayliss reported 16 cases of sciatica treated by application of hydrochloric acid over the course of the sciatica nerve (*British Medical Journal*, November 19th, 1898, p. 1550). In most instances they had defied every other treatment. Two patients were completely cured, 11 were considerably relieved, and 3 did not improve. He also treated 10 cases of intractable pain in the heels and plantar region, the sequelæ of acute rheumatism, many being gonorrhœal. Four of the patients were quite cured, 1 was very much relieved, and 5 were not improved.—*The Lancet*, July 14, 1917, page 57.

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OCTOBER 1, 1917.

PART I. ORIGINAL COMMUNICATIONS.

ART. XI.—*Shell-Shock.*^a By MAJOR F. C. PURSER.

SHELL-SHOCK, as a name covering a multitude of ideas, has been in everyone's mouth for two years past and more, and I have thought that some account of the conditions which the term is stretched to cover would be of interest to the Academy. I have not tried to draw up precise statistics of the frequency of this symptom or of that among the very many cases I have seen, my wish is rather to give a general account of the manifestations and progress of the condition as I have found it.

Men who have been exposed to the force of high explosive shells or who have been blown up by mines are liable to suffer from a very great number and variety of symptoms. They may be divided into three main groups. One group, which may be called shell-shock proper, in which the grouping of symptoms is new to us; and a second group of cases, of traumatic neuroses, of which no manifestation has been recorded which was not recognised and

^a Read before the Section of Medicine in the Royal Academy of Medicine in Ireland on Friday, May 11, 1917. [For the discussion on this paper see page 181.]

recorded before the war. The third group is one where there is absolute mental alienation. I do not intend to deal with cases where the sufferers became actually insane, for I have had nothing to do with these cases, nor do I intend to refer to the cases of traumatic neurosis, for to do so would add insupportably to the length of my communication. The most pitiable cases I have seen were in men who had been buried in mine explosions, and it is my impression that being buried adds to the intensity of the trouble. How it all starts exactly is often very doubtful. Many of the men know of the origin of their trouble only by hearsay : they remember, perhaps, an explosion, and then a blank, which may represent any length of time of unconsciousness. Some do not develop symptoms until some days after the shock, this especially among the cases of traumatic neuroses (and these cases seem often for a while to become progressively worse). Others wake up to consciousness and misery, which as a rule becomes steadily less.

English, Scotch, or Irish seem all alike susceptible. Nationality makes no difference. But age does, and there are unquestionably more cases between the ages of twenty and twenty-eight than between twenty-eight and forty-five. The bulk of the sufferers, especially the sufferers from shell-shock proper (as I have called it), are of poor physique and of apparently low powers of endurance.

As the cases of traumatic neurosis show an endless variety of symptoms, of paralyses and contractures and sensory phenomena, so the cases of shell-shock proper show an extraordinary similarity of symptoms. They are :—

1. *Headache*.—It may be in any part of the head, but is usually occipital or “behind the eyes.” It may be constant with intermittent exacerbations, or intermittent with periods of complete freedom. It is often associated with a feeling of “dizziness” or giddiness.

2. *Vertigo*.—The feeling of “dizziness” may amount

to severe vertigo and cause the patient to fall. But usually it is not so severe, and in the majority of cases I believe it to be not giddiness or vertigo at all, but a state of mental confusion. In some cases it comes on only when an effort is being made—such an effort as speaking to a strange officer. In no case have I noted nystagmus, not even when the patient confessed to the feeling of dizziness coming on during my examination of him.

3. *Insomnia*.—This has been confirmed by nurses, orderlies, and other patients. The man lies awake "for no reason," or because of the least noise, or because his head aches more at night. Sometimes he sleeps, but is frequently awakened by bad dreams.

4. *Bad dreams* are constantly complained of. They are red, deafening and choking—nearly always about the war. Or else about family tragedies—invariably about something unpleasant. Often the man awakes with cries and struggles of terror. Cessation of bad dreams may be looked on as a favourable sign, for they appear to cease once the patient's condition begins definitely to improve.

5. *Frequent pulse*.—This varies up to 140 per minute, and I have seen one or two cases where it was over 160. In about 30 cases I have measured the blood-pressure. It varies greatly. I have found it raised, and in other cases not raised. It has rarely been over 150 m.m. Hg.

6. *Tremor*.—This may be coarse and general, or fine and general. Usually it is fine, about 6 to 8 to the second, and in the hands. I do not think observation makes it worse.

7. These symptoms represent but half the cases of shell-shock. There is through and through them all a something less tangible but quite definite. It is a *state of depression*, mental and physical; a state of silent hopeless inability. (And one must leave oneself open to feel this. It saves one from making harsh misjudgments, and it protects one from fraud. For sufferers from shell-shock have their imitators, and headache and bad dreams and

dizziness are easy symptoms to feign. But the alert readiness to help, the energetic muscles in the back, brisk standing to attention, and communicativeness are all foreign to the genuine sufferers.) They are not reminiscent. Nothing upsets them so much as being questioned about or reminded of their experiences. They hate a noise, they hate bustle, and they shun a company. They also suffer greatly from the cold. They are happiest, and their condition improves most quickly in circumstances where they are warm and quiet and not hustled.

As a rule these cases do well. After six months or less they are fairly normal and can be profitably employed. But I know of no way of judging, at the outset, how any given case will do. I believe more reliance can be placed on the mental condition of a man's stock (if it be discoverable) than on any of his own symptoms or want of symptoms.

The physical and mental state which I have tried to describe to you is the framework of the condition of shell-shock. There are often as well added symptoms—dilated pupils, pallor, stutters, nervousness of manner—which do not add appreciably to the gravity of the cases. But there are a number of symptoms that do add considerably to the gravity of a case, and make the prospect of the sufferer's doing good work in any reasonable time extremely poor. These symptoms are :—

1. Loss of memory.
2. Constant mental confusion.
3. Hallucinations (uncommon).
4. Epileptiform fits.
5. Petit mal.
6. Profuse sweating.
7. Clinical picture of exophthalmic goitre.

I have seen cases which were unquestionably cases of exophthalmic goitre, and I had no reason to question their recent origin. I had two such cases treated with x -rays. But neither did at all well, contrary to my ex-

perience with these measures in cases of Graves's disease in civilian practice.

Sweating is a common symptom in mild cases of shell-shock. But in mild cases it is neither profuse nor constant. I have seen a man who had been sweating for seven months. At the time I saw him he was drenched in perspiration, and the medical officer in charge told me the man had been sweating continuously and as heavily the whole time. Nothing influenced it or controlled it. I was shown another case that had been sweating unilaterally, and only unilaterally, for many weeks.

It will occur to everyone to ask what is the pathology of shell-shock—what are the conditions underlying its incidence? This question I am unable to answer; my own conception of it is exceedingly vague and crude. Many of its outward expressions—frequent pulse, tremor, dilated pupils, sweating—are classical signs of great horror—and it seems as if the terror that lieth by night and also by day, to which all were exposed, has left greater and more enduring impressions on some nervous systems, especially on some sympathetic nervous systems, than on others. That it is not due to mere mechanical or chemical causes, such as concussion, exposure to noxious or to highly compressed gases, seems certain, for else all would suffer alike. Moreover, I have seen a few cases, which I should have considered typical and genuine cases of shell-shock, in men who had never been nearer the war than the South of England, nor nearer any explosion than that one had been within twenty feet of an accidentally over-turning lorry.

One's general impression of the men who make up this class of patient is that they are below the average in nervous evolution, and that their brains are of less durable stuff than those of the majority. When one sees several together one is struck by the general dulness in their expressions, and is inclined to size them up as men who in civilian life "follow cattle," or "stand on the step of a bus." I cannot, of course, assert that the men

whom I have seen suffering from shell-shock are, when in their normal health, mentally inferior to others. Less still can I assert that they are wanting in courage. On the contrary, I know that many have behaved with very conspicuous bravery. But I think that their reason has less than average control over their primitive instincts, and that it is more easily detached from their general make up than it is in the majority of men. I do not mean that their higher cerebral functions are disordered, so that we in finding them wholly unlike our own must consider the men insane, but I mean that their higher cerebral function—their reason—does not rule their primitive individual life, their sum of likes and dislikes, their emotions, so fully as in the majority of men.

It is remarkable how little will cause the return of all symptoms which patient treatment and time have caused to disappear. A petty squabble in the ward, the noisy breaking of a basin, will cause immediately the return of headaches, insomnia, tachycardia, sweating, speechlessness; and it may be long before the symptoms disappear.

And there is this remarkable fact to be noted, that the majority of the men are wholly unwounded. This is so much the rule that it must be taken into consideration in advancing any explanation of shell-shock psychical or physiological.

I should like now to relate to you the history of a case of shell-shock which was under my own care and observation for sixteen months. It is that of an Englishman, twenty-one years of age, in a Rifle regiment. In May, 1915, he was sent home, without any history of what had happened to him, and was admitted to the Dublin University V. A. D. Hospital in Mountjoy Square. The prominent symptom from which he suffered was dumbness. Besides, he saw very badly, and bumped into things. He was a little deaf too. His pupils were dilated, his skin always moist, and he was restless, shaky, and tremulous and feeble in getting about. His pulse was not remarkably frequent nor its tension raised. He unques-

tionably saw "things" that did not exist on the wall in one particular corner. He had no exophthalmos that could be regarded as pathological.

He was distrustfully afraid of us all, and we could do very little for a few days but keep him in bed and treat him with all kindness and gentleness. Then I got him up. He had quickly recovered his hearing, and I found he could write. His writing was large, shaky and monosyllabic, but it was the handwriting of one who had formerly written well and even elegantly. He could answer a few questions about himself, but he remembered very little of his home and less still of the war. What little of the war he did remember he kept on writing down—over and over again, catching me by the coat and shaking and sweating (and licking his pencil) he wrote down—"asylum, do not lock up, I am not mad"—over and over again this same pleading. Soon we had him reassured on this point; and then I tried to teach him to talk. We had first tried very injudiciously to rush it a little by employing hypnotism, but as the *séance* began with surrounding his bed by screens he at once felt he was being locked up again, and nothing could be attempted for several days while his state of perturbation was subsiding. Slowly and painfully he learned letters pp, tt, sss, "a" and "ooo" merely whispers. Then aa-ss, aa-tt, t-oo. Finally after many weeks, ss-sst-r, b-tt-r. He read a little, drew some pictures, not badly, once in a way played the piano, and he occasionally became skittish and made apple-pie beds for the other men. But all the while he was a soft, gentle boy, and one wondered how he had ever survived the drill-sergeant let alone have come to be thought fit for active service. He had a visit from his father at this time, and it is certain that he knew him and could appreciate some of his conversation.

Things went on like this till the end of September. During the last week of that month another man who had been sent home on the same ship, also suffering from shell-shock and dumbness, recovered his speech, in

another hospital, having been given ether to that end. I decided to give my patient a like treatment; so in his hearing I asked the sister to arrange for it, explaining that I wished to make an examination of his throat that might be painful.

An account of the first case, unfortunately, found its way into the public Press, and I know my patient saw the paper it was in. I do not know that he saw the actual record. So whether he may have been worked on by some powerful suggestive factor of this sort, or whether it was attributable, as many asserted, to his having heard some affecting music that afternoon, I do not know, but I do know that I spent the evening practically sitting on the chest of a very different creature from the one I have tried to describe.

He had, it seems, been seized about 6 o'clock with some sort of "spasm," shall I call it? and called out by his nickname to a Highlander in the ward. And thereafter, in a fury of physical and mental excitement, he acted, and revealed to us the only thing known about the origin of his affliction. He was now a comparatively strong man, and he struggled with all his strength. He knew none of us, he had no idea where he really was, he saw only the Germans coming and carrying off his machine gun while he was unable to move. He shouted for men to help, and wrung his hands over their, our, madness in not seeing and coming to the rescue. He seemed quite clear what ought to be done under the circumstances as he saw them; and I understood that he might have been a very good soldier. I had given him almost $\frac{1}{2}$ gr. of morphine to quieten him, and as it began to take effect—it never had very much—his fighting spirit gave place to despair. He felt disgraced by the loss of his gun. He trembled at the thought of what would be said to him, and I had to promise over and over again that I would take the whole responsibility. For three days he continued in this state, only in a less violent mood. He now remembered his regiment, his regimental number, and

various things connected with the army and the fighting which he had forgotten before—but his life during the previous months was entirely forgotten. He knew me only as the officer who had promised to say he was not to blame—and all the rest were quite forgotten. One thing only did I discover, showing he had some buried memory of his surroundings. He did not know us, he “had never been in Dublin or Ireland;” but when I asked him if he knew B—, his chum, he said “Yes, he had once known a man of that name—he was an Irishman (which he was not), and he lived far away over there,” pointing to the ward from which they had both been moved some days previously. He could not read now, partly “because the print was indistinct,” but chiefly because words, when he had spelt them out, conveyed no meaning to him. He had a functional alexia. I tried him with the Bible and a Prayer-book, as I thought he might recognise the words and read easily, but he gave up trying, and instead picked up a scribbling book in which he had drawn some pictures. Suddenly, he turned up one—a picture of a bunch of flowers that was still on his locker—and then he had another fit of excitement, and went back to his state of seventy-two hours before, retaining, however, his power of speaking. After this he remembered nothing of his time in France, except that he had been locked up. On that he was definite and positive, but he was reasonably rather than emotionally outraged at the fact. His memory of his home life was more than ever a blank—he had completely forgotten his father, and when visited by him accepted him as his father “only because we said he was his father.” He told me quite dispassionately that he found it very hard to keep up a conversation with his father (who was again visiting him), as he knew nothing of his home, and his father knew nothing of anything else.

Naturally he was rather prostrate for some time. However, he soon picked up again, and by the end of October he was physically stronger and more alert than he had

yet been. But his mental horizon was bounded by the four sides of Mountjoy Square and what little he could remember of his reading in the newspapers. He had even then some trouble in vision and suffered from headache. And in the beginning of November his sight left him, and his knees failed him, when out in the square, in a manner to make one suspicious of a slight epileptic fit.

It is obvious that there is no special treatment for such a case as this man's. He was kept warm and quiet, and employed as far as possible. I tried various suggestive remedies and various tonic and sedative drugs, but nothing made any striking difference. My colleague, Dr. Smyly, tried hypnotism at the man's request, but it was not a success. As he was worse after it it was discontinued. Psycho-analysis I tried quite ineffectually, as you will surmise, seeing the man remembered nothing in his normal state and hypnotism was barred.

Now at the end of November he became alarmingly depressed, and made several suspicious moves towards the windows. He told me quite frankly that he could look on at himself going out through the window without feeling in the least responsible. His blood-pressure, which had been normal, now registered 178 m.m. Hg. His pulse was 80 to 90 per minute. I asked Major W. R. Dawson, R.A.M.C., to see him with me, and he gave it as his opinion that the man was suffering from melancholia and was suicidal. Under Major Dawson's advice precautions were taken for treating the man where he was. He was kept in bed and given thyroid extract in quantity. He got 15 gr. the first day, 30 gr. the second, 45 gr. on the third, and he would have got 60 gr. on the fourth, 45 gr. on the fifth and so on, had we not become alarmed at the feebleness and frequency of his pulse; which went up to 140 per minute. Mentally he was very much the better of this treatment, and three weeks later his blood-pressure had fallen and was 140 m.m. Hg. But he was weaker and more shaky and more pitiable than

ever. He now became frankly hysterical in a ridiculously emotional way and in his inability to do things. He could not stand nor walk, he could not pull on his socks. He could not even feed himself. I thought a change of scene would do him good, and in February, 1916, I had him transferred to Mercer's Hospital. There he showed no emotional peculiarity at all. He was always nervous and retiring, but not at all unreasonable. He suffered from a functional inability to stand and walk—astasia—abasia—which proved quite incurable. And his tremor became very jerky and coarse and persistent. He also developed gradually during the spring a considerable even enlargement of his thyroid gland, and his pulse was constantly up to 120 per minute. He had well-marked dermatographia, and approached to the clinical picture of Graves's disease. But his chief trouble lay in his inexplicable sleeplessness. Even $\frac{1}{4}$ gr. morphine often had very little effect. Of all drugs, paraldehyde proved the best. At first he had to have a full dose, but by degrees we cut it down to one minim in a spoonful of water, and it acted. But without that he often spent a whole night genuinely and certainly without sleep.

On the whole, there was no improvement, or so little in the spring and summer that I gave the case up as a bad job, and recommended his discharge. He was sent home on the 2nd of September.

A letter from his father at the beginning of this month contains this information about him:—"He has improved considerably during the last two months, and is much steadier. He flushes very much if strangers worry him at all, and is then inclined to be more shaky. He is altogether brighter and more himself. He could never tell us anything about Dublin when he came home, but his memory is much improved, and I don't think he ever forgot who you or Sister were. And I am glad to say he can read much better. When he came home first all his friends were as strangers to him, now he remembers them

after they have been a time or two quite well, and takes an interest in them. As regards the walking, he is still unable to support his weight on his legs—still I can see a difference, for he does not take so much supporting now as he did a few months ago. . . . ”

ART. XII.—*The Early Diagnosis of Venereal Disease and Laboratory Aids to Successful Treatment.*^a By J. McCULLAGH, M.D. Univ. Dubl.; T/Capt. R.A.M.C.; Bacteriologist, &c., Portobello Military Hospital, Dublin.

THE question of Venereal Disease is one of vital importance at the present time, when these diseases are so rife amongst all classes of people. Since the outbreak of hostilities venereal disease has spread from our largest cities practically to our smallest hamlets. In selecting a thesis I selected early venereal diagnosis for two principal reasons: firstly, these diseases are engaging the attention of many physicians at the present time; and, secondly, I have been fortunate to be attached to one of the largest military venereal hospitals in the British Isles. The awful havoc caused by syphilis and gonorrhœa is known to all clinicians of experience engaged in our hospitals, and one cannot help but think that a great part of the distress caused by these preventable diseases could be removed or ameliorated to a considerable degree. The clinical diagnosis of venereal disease will always be “our ideal,” but one should regard laboratory methods of the greatest assistance and of essential importance in the early diagnosis of these diseases, as the causative organisms must be identified very early if satisfactory results are to be obtained from treatment later. Chancres and chancreoids—the Spirochaete pallida has been shown to be the specific organism for syphilis. The interesting discovery of Metchnikoff

^a A Thesis read for the Degree of Doctor of Medicine in the University of Dublin, June, 1917.

and Roux¹ that animals such as apes could be inoculated with the virus was the means of stimulating others to research, until Schaudinn and Hoffmann² published their joint paper describing the Spirochæte pallida; but to Noguchi³ is credited the placing beyond doubt that the Spirochæte pallida is the causative protozoon of luetic infection. Noguchi also succeeded in cultivating this protozoon and fulfilled Koch's postulates, and so placed beyond doubt its identity. Mention must be made of the fact that McDonagh⁴ questions the above, and states that the Spirochæte pallida is only the adult phase in the life history of the specific organism for lues, which he has named the Leucocytozoon syphilidis. He states that this protozoon may be assigned to the order Sporozoa and the sub-class Telosporidia, since the spores are formed at the end of a cycle. The order, he states, is the Coccidiidea, and the species is the Lencocytozoon; hence the name Leucocytozoon syphilidis. This syphilologist has brought forth strong evidence to prove his discovery, and confidently awaits time to prove the accuracy of his work; and it may be mentioned that his work has been confirmed by Peyri of Barcelona⁵ and Klauser of Prague,⁶ although not generally accepted by the Medical Profession. The patient presenting himself for diagnosis should be thoroughly examined for the presence of an early lesion. Every sore about the penis should have repeated examination for the presence of the Spirochæte pallida. Rarely one meets with the typical indurated chancre, so the syphilologist must be prepared to find the virus in every type of lesion; also he must ever remember that induration generally means fibrosis and healing, hence the infective process is nearing the generalisation stage, which we should endeavour to prevent. Primary syphilitic lesions differ greatly in appearance, due to their situation and the amount of secondary infection present. Dryness tends to produce induration. Some chancres are little more than a papule; others have passed into the ulcerated condition,

and resemble a small, irregular, granulating sore. At times the appearance resembles an impetiginoid patch or just a superficial, localised dermatitis. The beneficial results which follow the early discovery of the protozoon no one will dispute, and suffice it to say that this is the stage of the disease when cure can be guaranteed to be permanent and lasting if the treatment is properly administered. Tiny lesions due to the *Spirochæte pallida* are continually being diagnosticated in hospital practice, as the following is an example:—

CASE I.—Private J. D., age 27, 2nd Royal Ennis. Fus. Admitted to hospital 14th January, 1917, suffering from gonorrhœa contracted 10th January, 1917. Whilst undergoing treatment he noticed a tiny lesion on the dorsal surface of the balanus. The same morning he was sent for “dark ground examination.” *Spirochæte pallida* found, and syphilis was diagnosticated.

Gonorrhœa patients frequently develop syphilis in hospital, being infected on the same date as that on which they contracted gonorrhœa. The diagnostic and prognostic significance of such an early discovery of the organism is apparent, and it seems superfluous to speak of its recognised advantages. The first intravenous injection of salvarsan will kill all the spirochaetes in the chancre, and thus demonstrates its marked bactericidal effect *in vivo*. The *Treponema pallidum* is a strict anaerobe, and failure is frequent on first examining the lesion to demonstrate the protozoon.

Whilst under observation the patient should be advised to dress the lesion with physiological saline, and to return every second day for examination until success or failure occurs. Rarely is it necessary to exceed ten examinations, as if the organism is to be found it will have migrated to the surface by this time. For the successful demonstration of the *Spirochæte pallida*, the method known as “dark ground illumination” is undoubtedly the best. To obtain dark ground illumination the microscope must be fitted with a paraboloid condenser, which shuts out the central

rays of light and reflects the lateral rays which cross and illuminate solid particles in the preparation under examination. A good source of illumination is needed, such as a small arc lamp or a Nernst. If electricity is not available, a good incandescent burner will solve the lighting difficulty. By this method the spirochæte can be demonstrated in a few minutes, if present.

The procedure adopted is as follows:—The lesion is gently scarified and squeezed. Serum will ooze up from the depth of the sore. This is collected and mixed with some physiological saline. Some of this mixture is examined after being placed between a coverslip and slide. A drop of cedar-wood oil is placed on the upper surface of the condenser, and the slide is placed thereon, and may now be examined with the $\frac{1}{6}$ objective or $\frac{1}{2}$ oil immersion lens. Before starting the examination the circles grooved on the upper surface of the condenser must be centred with the low power, and the source of illumination arranged at its best. By this means the protozoon is seen in its live state, and its movements, &c., may be recognised and studied. The second method, known as the "Indian ink" method, is utilised as a control and for preserving specimens for future examination. The procedure adopted is as follows:—One drop of luetic serum from the chancre, a drop of saline, and a drop of ink are mixed together and smears made in the usual way. This is an artificial dark ground, and is very practical. The Indian ink films are examined with the oil immersion lens when dry. The various methods of staining the organism have not found many friends, as time is their chief drawback. If after successive examination failure results and the lesion appears to be a chancroid, an attempt to produce an inoculation ulcer should be made and the demonstration of Ducrey's bacillus performed. This is a streptobacillus, and may be found under the undermined edge or deep in the floor of the ulcer. The best clinical characters of the chancroid are the undermining of the edge and the inflammatory

zone around it. Hardness and softness have little clinical value except that induration frequently means a luetic origin, but one must remember that eight out of ten soft sores also are syphilitic. Consequently, it would be a great benefit to beginners if the terms hard chancre and soft chancre were effaced from medical literature.

In the exudates from chancrea another spirochete will be frequently found in a state of symbiosis with Spirochete pallida. This protozoon is styled the Spirochete refringens. How far this protozoon is capable of producing pathological lesions by itself is open to dispute, and the tendency is to regard it as non-pathogenic. From experience, I think it can be pathogenic at times, as the following case illustrates :—

CASE II.—Private —, Royal Münster Fusiliers, admitted 4th January, 1917, suffering from gonorrhœa. A few days after admission he developed two tiny ulcers, surrounded by a marked inflammatory zone situated on the corona. Nothing but Spirochete refringens could be demonstrated microscopically or culturally from these tiny lesions. The differential diagnosis of these two symbiotic protozoa is set out in the following table :—

	S. PALLIDA	S. REFRINGENS
SHAPE ...	Cork-screw spirals regular, ends pointed, shape never lost, spirals 6 = diameter of one Erythrocyte	Straight or wavy spirals, regular or irregular, shape frequently lost
REFRACTIBILITY	Refractile	Very refractile
MOVEMENTS ...	Eel-like movements, shape not lost during movements	Mobility and movements vary, frequently sluggish
PATHOGENICITY	Specific for Syphilis	Unknown

From the above procedures the diagnosis is made, and the patient is placed on early treatment. The Spirochete pallida has been found in every luetic lesion from time to

time. So secondaries, such as condylomata, should have the benefit of a dark ground examination as a confirmatory diagnosis. The discovery of the complement fixation test by Bordet and Gengou was the essential factor which led up to the discovery of Wassermann, which is probably our best test for luetic serum. Bordet and Gengou⁷ found that with an extract of a specific bacterium its specific antibodies could be found in the serum of its host. At that time the cultivation of the Spirochæte pallida had not been accomplished, but Wassermann,⁸ in 1907, found that an extract of syphilitic foetal liver, which is generally teeming with spirochaetes, would take the place of an extract of the protozoa themselves. This discovery and its application to the complement fixation test is now generally known as the Wassermann reaction, and is of the greatest assistance in the diagnosis of obscure syphilitic lesions. At first this test was thought to be specific for syphilis, but later it was shown that the reaction was given with an extract of normal organs; therefore, the reaction could no longer be regarded in the light of being an absolutely specific one, but merely a physical reaction, and it has been shown that the reaction may be positive in many other diseases due to protozoa—*i.e.*, yaws.

After completing this reaction with 500 serums, the following results were noted: that the reaction does not become positive until the generalisation stage is established. This has been ably demonstrated by Nuth and Mulzer,⁹ who obtained positive results in animal inoculations with blood from primary syphilites who still give a negative reaction. We found that the reaction became positive about 35-45 days after infection, and is positive in 94 per cent. of patients who clinically show secondary symptoms. In latent and tertiary syphilis it is positive in 100 per cent. of patients. The fact that early in the generalisation stage the blood is negative is what might be expected, as it takes some time before the changes which give the reaction take place in the serum.

The type of Wassermann, on which most reliance can be placed, is the original.

The following is the usual procedure adopted in Portobello Military Hospital, and the results are in every way satisfactory. For the performance of the Wassermann test five reagents are required—(1) Antigen. This is easily prepared, and one of the most satisfactory is alcoholic extract of human heart + .2 to .4 per cent. pure cholesterin. This is really an alcoholic solution of lipo-globulin and cholesterin. (2) Serum, to be tested. 10 c.c. blood are obtained by venipuncture, and the serum which separates is used, after inactivation, which is done by heating to 54 degrees (C.) for 30 minutes. (3) Complement, fresh guinea pig serum is used. (4) Haemolytic serum (sheep-rabbit), obtained by inoculating a rabbit intravenously with graduated doses of sheep's corpuscles. (6) Washed sheep's erythrocytes. Corpuscles are washed four to six times in physiological saline.

The amount of antigen required is found by arranging a series of tubes with various amounts of antigen, and the amount that inhibits in the case of a positive serum and does not inhibit in the case of a negative serum is used in the test. This determined amount is made up to 1 c.c. with .85 per cent. of saline before use; .1 c.c. of the serum to be tested and 1 c.c. of suitably diluted guinea-pig serum; the amount of dilution is found by graduating the amounts of serum in the presence of known amount of H. S. and corpuscles. The antigen, serum, and complement are mixed and made up to 3 c.c. with saline and incubated 1 hour. 1 c.c. of suitably diluted haemolytic serum is added. The amount of dilution is found by graduating the quantities of serum added to a known amount of complement and corpuscles.

The sheep's red cells are diluted to 1 in 40, and 1 c.c. is used in performing the test. After adding 1 c.c. haemolytic serum and 1 c.c. corpuscles, the tubes are incubated for two hours longer. Results noted when the contents of the tubes have settled. Positive serums show inhibition;

negative, show complete haemolysis. Citron divides the stages of reaction into four—

+4 = complete inhibition = strong positive.
+3
+2 } intermediate stages.
+1
— = complete Haemolysis = absolutely negative.

Lately it has been found advisable by us to use two antigens, and the two preferred are (1) alcoholic extract of fat-free heart muscle and .2 per cent. cholesterol; (2) Noguchi's acetone insoluble bodies—really the alcoholic extract of normal organs evaporated and sticky mass stored under acetone. Suitable controls must be used in the test—(1) serum control, (2) antigen control, (3) positive control, (4) negative control. The value of the Wassermann is fully displayed in latent and obscure tertiary cases. We use the above technique also with cerebro-spinal fluid only; as this is practically an ideal fluid, it may be used up to 2 c.c., as it contains no precipitins, &c., which interfere with the test if excess of serum is used. Other serum reactions are the epiphanen reaction of Weichardt,¹⁰ which depends on the alteration of the reaction to phenolphthalein of an exactly neutralised mixture of barium hydrate and sulphuric acid in the presence of combined antigen and antibody. The procedure for this test is as follows: 0.1 c.c. of a 1-10 dilution of serum in physiological saline is mixed with 0.1 c.c. suitably diluted antigen (alcoholic extract of normal organ or syphilitic liver best). One cubic centimetre of decinormal sulphuric acid is now added, and then an amount of barium hydrate, which will exactly neutralise the acid. One drop of alcoholic solution of phenolphthalein is next placed in the tube. Result positive shows alkalinity or red; normal shows no change in colour. Other reactions, as Porges's,¹¹ obtained by mixing inactivated serum with 1 per cent. solution of sodium glycocholate and the Rivalta¹² reaction, which is serum diluted with 1 to 100 with alkaline distilled water

(one drop saturated solution of sodium carbonate + 100 c.c. distilled H_2O). Some alkalinised serum is dropped into acidified distilled H_2O (2 drops glacial acetic acid per 100 c.c. H_2O) with a positive serum. A cloud develops. With negative serums there is an absence of a cloud. Our experience with this test is that negative serums frequently give a cloud. These last two reactions were not found of much practical value. A test recently introduced by McDonagh,¹³ styled the Gel test, will probably be a reliable precipitation test, as it is founded on sound theoretical reasoning. This test is not long introduced, and time will prove its value. By combining the above tests the serum may be diagnosticated luetic or not.

The consensus of opinion amongst syphilologists at the present time is that the cerebro-spinal axis is infected during the secondary stage, and the results of examination of the cerebro-spinal fluid is strong evidence in favour of this opinion. The protozoon exists in greatest numbers in the body of its host in the early generalisation stage. Noguchi has demonstrated the Spirochete pallida to be present in several cases of degenerative encephalitis and tabes dorsalis. The only hope of successful treatment of this infection of the cerebro-spinal axis is an early one, and if possible prophylactic. The cerebro-spinal fluid is usually examined—(1) cytologically, (2) chemically, (3) serologically. It is of importance to realise that with pathological cerebro-spinal fluid it is essential to give intrathecal injections if the patient is to have the benefit of arsenical treatment, as the salvarsan does not reach the cerebro-spinal fluid by the intravenous route. The cytological examination is conducted with the Thoma-Zeiss haemocytometer, either by staining the fluid or with an unstained specimen. The normal cell count is 5 to 8 per cubic mm. In pathological fluids it may rise to 1 or 2,000 cells per c.c.m. In syphilis it is mostly the lymphocytes that are increased, and this usually occurs early, often before the Wassermann gives a positive reaction.

Chemical Examination.—In all pathological changes the

protein content is increased. In syphilis, first the albumen is increased, later the globulin. The increase of globulin, which is more serious, is usually shown by Nonne Apelt reaction, depending on the following :—When a saturated solution of ammonium sulphate is added to the cerebro-spinal fluid, the globulin is precipitated, and if the ammonium sulphate be added carefully an opalescent ring appears. With excess the globulin is precipitated, and albumen is tested for by Heller's test—the addition of nitric acid, which precipitates the albumen, giving an opalescent appearance.

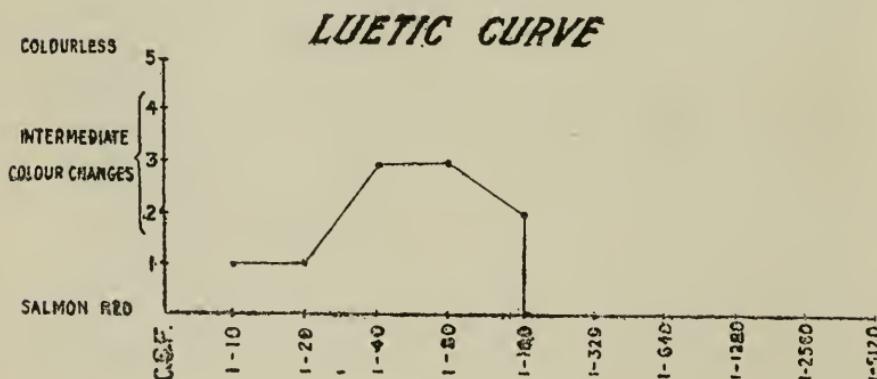
Noguchi advises the addition of butyric acid as a test for globulin, and performs it as follows :—0.1 c.c. C. S. F. is added to 0.4 c.c. of a 10 per cent. butyric acid solution in normal saline. Boil for a few minutes, and quickly add 0.1 c.c. of sodium hydroxide solution. Boil once more. A granular or flocculent precipitate appears, with excess of protein.

Perhaps the best test for demonstrating increased protein content is Lange's¹⁴ Gold Sol. test. The value of this reaction has become more apparent since it has been shown by Kaplan¹⁵ that by using this test and plotting the results obtained on a curve one can differentiate between early paresis and other conditions simulating it. Also these curves show the bad prognosis for tabetic cases, showing the " paretic curve " with this test, although showing no mental impairment. Lange¹⁶ in 1912 found that excess of protein in the cerebro-spinal fluid precipitated colloidal gold from solution, and therefore he could differentiate normal from abnormal cerebro-spinal fluid; also by this test he could differentiate syphilitic disease from other disease of the cerebro-spinal axis. How this reaction occurs was not definitely settled, however. Lange thought it was due to a qualitative mixture of proteins. The test itself consists of a series of colour changes, which occur so characteristically and constantly that they may be said to be specific. Kaplan performs this test with a

graduated series of dilutions of cerebro-spinal fluid in geometrical progression—1-10 to 1-1520.

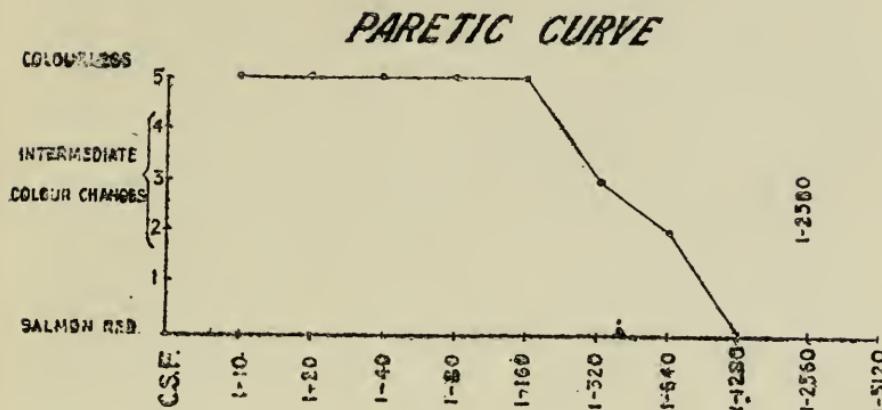
The colour depends on the amount of colloidal gold precipitated, and varies from a negative salmon red through red blue, lilac or blue, blue-grey or grey and colourless. The series of colour changes are plotted on curves and arbitrarily expressed from 1-5. A negative gold test would show no change, and therefore would be expressed as 0,000,000,000. In tabes and cerebro-spinal syphilis the reaction occurs in the lower series of dilutions with the intensity of change in the third and fourth or fourth and fifth tube. Kaplan describes this as the "Luetic Zone," and plotted on a curve as the "Luetic Curve." This type of reading would register as follows:—

1,133,200,000, and the curve would show



Fordyce¹⁷ points out that in meningitis of non-syphilitic origin the maximal changes occur beyond the luetic zone, whilst in paresis precipitation occurs regularly in the first four or eight tubes with discolourisation or a turbidity, and would give a reading as follows:—5 5 5 5 5 5 3 2 000. To this Millar and Levy have applied the term "Paretic

Zone." Plotted on a Kaplan Curve this would appear as follows :—



The ultimate prognosis of a case of tabes whose C. S. F. gave a Paretic Curve would be bad, as the patients frequently develop degenerative encephalitis later. An important procedure is to test the cerebro-spinal fluid by the Wassermann reaction. The C. S. fluid has practically no anticomplementary properties, and may be used in quantities up to 2 c.c. in the test.

Having tested the cerebro-spinal fluid by the above methods the patient may be diagnosticated as having luetic involvement of his nervous system, and the required treatment instituted with a good prognosis if the case is seen early. With the discovery of the successful method of cultivating the Spirochæte pallida another reaction came into prominence : that was the "Luetin Test." This is a valuable test for latent syphilis and obscure tertiary cases. Noguchi¹⁸ prepares his luetin by extracting killed cultures of several strains of Spirochæte pallida. Most success in the cultivation of the spirochæte is to be met if the details described by this observer are carefully carried out. He first prepares impure cultures by in-

oculating tubes of serum water ('heep, horse, or goats' serum one part and distilled water three parts). These tubes are sterilised fractionally by means of heat applied for 15 minutes daily for several days. Finally, into each tube is placed a piece of sterile rabbit's kidney and a piece of syphilitic rabbit's testicle. After incubating for ten days at 35.5° C. he found the spirochaetes had multiplied considerably. Finally, he obtains pure cultures by inoculating tubes, three-quarters filled with neutral nutrient agar containing sterile rabbit kidney, with the impure cultures, using a long pipette. After some days small hazy colonies were found to have migrated from the region of the stab into the agar. These growths could be fished out and identified. In all experiments with the Spirochæte pallida one must remember this protozoon is a strict anaerobe. Noguchi prepares luetin from these cultures killed at 60° C. for half-an-hour. .5 trekresol may be added as a preservative. The test itself is performed as follows :—A site is selected on the arm, which is cleansed and sterilised with antiseptics. The luetin is injected between the epidermis and dermis. A small pale swelling is produced, which subsides in 10-15 minutes. The reaction varies with the amount of antibodies in the serum, and may vary from an erythema to a pustular sore, and the reaction is diagnostic of syphilis.

By combining the above reactions the diagnosis of luetic disease anywhere in the body can be established. The organism which is the cause of chancroid is Ducrey's bacillus. It is difficult to cultivate. It grows best on hot blood agar. The result of vaccine treatment with this organism is unsatisfactory, and is rarely to be recommended owing to the difficulty of procuring a suitable growth.

The next disease in which the early diagnosis is essential to good treatment is the type of urethritis due to the gonococcus. The best procedure to adopt with all patients is to give the urethral discharge a thorough microscopical investigation from which diagnosis can be made, and inject

an autogenous vaccine prepared at the same time. The procedure we adopt at Portobello is as follows :—Some of the discharges are taken and three sets of films are made. The first set is stained with borax methylene blue, the second by Gram's method, the third with Pappenheim's stain. The methylene blue is a good stain where pus cells and epithelial débris are present. Gram is used to differentiate. Pappenheim's stain, which is a mixture of methyl green, pyronin, alcohol, glycerine, and carbolic acid, is supposed to be a distinctive stain for the gonococcus, which stains brilliant red by this method ; other organisms stain a reddish colour, but not brilliant. The cause of most cases of urethritis is the gonococcus ; this is recognised as a Gram negative diplococcus, frequently situated inside the pus cells in early cases. Before treatment is commenced is the time to make the autogenous vaccine for use in treatment. We find that the gonococcus grows well on many special media, but the one which is best and gives the best results is nutrient agar + 1 or 2 grams sod. phos. per 1,000 c.c.ms. and made + 18 to phenolphthalein. The agar is mixed with native protein (human blood $\frac{1}{2}$ part and agar $4\frac{1}{2}$ parts), or the blood is just smeared on the surface of the agar. The tube is placed on the incubator at $37.5^{\circ}\text{C}.$, and later removed and planted whilst the agar is hot. Recently it has been our practice to make the blood agar tube when the patient is seen in the morning and to plant later in the day. The patient can then be placed on local and general treatment almost immediately, and by this procedure the causative organism is attacked from the beginning. When the vaccine is prepared, the patient should receive his first injection as early as possible if good results are to be obtained. Too much stress has been laid on the "vaccine count" by many observers, who do not seem to realise that it is the virulence of the organism and the amount of endo- and exo-cellular toxins which the vaccine contains that give the reaction. This information cannot be obtained beforehand, so our practice is to give a small dose early, and gradually increase this,

according to the reaction obtained. As soon as we think the patient's blood serum contains the specific antibodies, we take 10 c.c. of blood and sensitise the patient's own autogenous vaccine with the specific amboceptors contained in his serum. This we give later by the intravenous route, as the results are better and the reaction less by this method. With many vaccines we give just one subcutaneous injection to prove sterility, and then let the patient have the remainder intravenously.

For some time past we have given up the Opsonic Index as an index of treatment, as we realise that this test does not give the information needed—that is, if the patient is producing specific antibodies—but only gives the phagocytic index. This information is found out by the Complement Fixation Test,¹⁹ which is performed just like the Wassermann, only using suitably diluted gonococci as antigen. For the positive control antigenococcal serum is used. We find that the serum supplied by B. W. & Co. give good results. This is a specific and satisfactory test, and is quite valuable in cases of obscure joint trouble or other gonococcal foci of infection when no evidence of gonococci can be obtained in the patient's discharge, prostatic or seminal fluids. Schwartz, having utilised this test in the differential diagnosis of arthritis, states that this test should prove a valuable addition to our means of diagnosis between gonococcal and other forms of arthritis. Lespinasse and Wolfe²⁰ state that the antibodies which give the reaction do not appear before the fourth week of the disease. These antibodies persist as long as any gonococcal foci are present and for some time after the cure of the disease is complete. With the hope of stimulating the early production of antibodies, vaccine is to be recommended early, and how soon these appear may be demonstrated by the Complement Fixation Test. The treatment of urethritis by vaccine is a great addition to the future welfare of the patient suffering from these diseases. Of course one must remember that the gonococcus frequently disappears, leaving behind a super-imposed secondary infection with

staphylococci, streptococci, pneumococci, diphtheroids, &c., and if any of these are noted they must be included in the vaccine. By the above technique the early diagnosis of many obscure conditions are arrived at in our hospital practice where we have 300-350 venereal patients continually under treatment, and by such procedures the end results in the treatment and diagnosis of venereal disease are brought much nearer the "ideal," both to the gratification of the patient and the physician. My best thanks are due to Major E. G. Ffrench, M.D., F.R.C.S.Ed., Medical Officer in Charge, Military Hospital, Portobello, for his valuable assistance and courtesy in allowing me to investigate the subject of my thesis.

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REPORT OF A VERY LARGE FŒTUS.

BRODHEAD (*Am. Jour. Obs.*, LXXV., 993) reports the birth of a stillborn healthy child weighing $15\frac{11}{16}$ pounds B. S.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Sanitation in War. By MAJOR P. S. LELEAN, C.B., F.R.C.S., F.C.S., D.P.H., R.A.M.C. Second Edition. With 54 Illustrations. London : J. and A. Churchill. 1917. Cr. 8vo. Pp. viii + 336.

THE second edition of this admirable little work follows the practical and eminently useful lines which caused the rapid exhaustion of the first edition. Though a brief period has elapsed since its publication, military hygiene, like other matters in connection with war, has undergone rapid developments, as reflected in the excellent epitome before us. We consider this one of the most thoroughly fascinating books we have ever read, and we are amazed at the genius which produced it amid all the drawbacks and difficulties of very active service. A new chapter has been added on "New Departures in Field Sanitation," profusely illustrated by sketches of clever sanitary contrivances manufactured from very simple materials. Where all is good, it is perhaps unfair to particularise, but we would specially mention the excellent chapter on "The Rôle of Insects in War," in which the author has had the assistance of Major E. E. Austen. Other subjects dealt with are: Physical Fitness, Anti-typhoid Inoculation, Sickness in the Army, Medical Organisation, Conservancy and Water Supplies.

It is safe to say that no medical man connected in any capacity with the Army should omit to become thoroughly acquainted with the contents of this handy little volume, which in size is little bigger than a pocket-book. Indeed, anyone interested in the subject of sanitation or hygiene will find here much valuable and condensed information concerning a wide range of subjects.

An Index of Differential Diagnosis of Main Symptoms by Various Writers. Edited by HERBERT FRENCH, M.A., M.D. (Oxon.), F.R.C.P. Second Edition. With 37 Coloured Plates and over 300 Illustrations. Bristol : John Wright & Sons, Ltd. 1917. Large 8vo. Pp. xx + 912.

THE first edition of this extremely useful work achieved such wide popularity that we need say little of the second except that it has been in every way improved. The book is now a very formidable volume, but we quite approve the Editor's decision not to publish it in two parts. So many features have been altered that the present work bears little resemblance to its predecessor, though, of course, the general arrangement is the same. In addition to complete revision and the inclusion of some new articles, a larger type has been employed, with a consequent increase in the size of the pages, and the illustrations, both coloured and plain, have been nearly doubled in number.

The index is, however, the most remarkable part of the book, and is sufficient evidence of the wide scope and careful compilation of the volume. It alone occupies 138 pages, mostly of very small type, though in the case of main subjects two larger varieties of type are employed, thus facilitating ease of reference.

It is impossible to imagine any ordinary symptom or sign in Medicine which will not be found in such a comprehensive list.

The Index of Diagnosis, with its companion volumes dealing with Treatment and Prognosis, form a comprehensive library in miniature, and are an excellent if not an imperative investment for any practitioner.

Revue de Chimiothérapie et de Médecine Générale.
Rédacteur-en-chef: DR. J. LAUMONIER. Paris. 1917.

THIS is the first number of a new periodical which, for the present bi-monthly, will appear monthly when the war is over.

Its main object is to bring before the French medical public a *résumé* of new or recent work in chemo-therapeutics.

The only original article is contributed by the Editor, and deals with experimental researches on colloidal iodine.

No information is vouchsafed as to the mode of preparation of this new form of iodine which is stated to have high germicidal powers with feeble toxicity.

Lectures on Tuberculosis to Nurses. Based on a Course delivered to the Queen Victoria Jubilee Institute for Nurses. By OLLIVER BRUCE, M.R.C.S., L.R.C.P.; Joint Tuberculosis Officer, County of Essex; late Medical Superintendent, Queen Alexandra Sanatorium, London, Canada; late H.P. and A.R.M.O., Brompton Hospital for Consumption and Diseases of the Chest. With Illustrations. London: H. K. Lewis. 1913. Cr. 8vo. Pp. 134 + viii.

In the better world that is to be, when civilisation arises from its ashes in a fuller conception of brotherhood and freedom, when men's minds are free to turn from annihilation to reconstruction, it will be found that the tuberculosis problem has assumed an importance even greater than ever before. Notwithstanding the benefits which may accrue to the national physique from military training, war is essentially anti-eugenic. The destruction of healthy manhood has enhanced the value of child-life, and the prevention of tuberculosis in its protean aspects has become vital to the well-being of the State.

No class of society is in more constant contact with this problem than the nurses of the Queen Victoria Jubilee Institute, that band of devoted women who work among the sick poor in their own homes. To a class of these nurses Dr. Bruce's six lectures were delivered, and they were subsequently published in the little book before us.

The course covers the essentials of the subject as they concern the nurse, but it goes farther—perhaps too far—

in dealing with such matters as the opsonic index and tuberculin treatment. The author is happiest when he deals with purely nursing matters, the observation of patients in institutions, the supervision of graduated exercise, and the all-important question of prevention in the home and amongst contacts. Any nurse who aspires to tuberculosis work—be it in an institution or in the tenements of our cities—will find much to help them in this book.

A Manual of Practical X-ray Work. By DAVID ARTHUR, M.D., D.P.H., Radiographer to King Edward Memorial Hospital, Ealing, to the Acton Hospital, and to the Auxiliary Military Hospital, Southall, London, W., X-ray Therapist (Ringworm) to Brentford Union, Ealing Town Council, Acton and Hounslow Urban Districts ; and JOHN MUIR, B.Sc., M.B., Ch.B., and B.Sc. (Pub. Health), Capt. R.A.M.C. (T.). Second and Revised Edition, with 185 Illustrations. London : William Heinemann.

THE second edition of this book is quite a third as large again as that which came out some eight years ago. It has been brought well up to date and considerably improved, and it can be recommended as in general a very satisfactory text-book. The account of the various apparatus and their usages is given well and fully, while special attention has been paid to the requirements of mobile plants, such as military or naval men may have charge of.

We think, however, that there is still considerable room for improvement, especially in the illustrations from *x-ray* negatives. These might surely be much better reproduced, unless the fault be in the originals. The chapters on diagnosis are not, in our opinion, up to the general standard of the book. The statements therein are apt to be too dogmatic, and consequently not very reliable. To come to detail. On pp. 92 and 93 the numbers in the illustration,

do not correspond with those in the text. On p. 138 we read that "experiments on animals *seem* to demonstrate that the *x*-rays *probably* have an arrestive action on the special functions of the generative organs." (Italics are ours.) Surely this is a culpable understatement of fact. From the statement on pp. 233 and 234 it would seem that "wandering acetabulum" is synonymous with absorption of the femoral head, while the figure described (Fig. 124) does not appear to us to show a wandering acetabulum. The position given for radiographing an ankylosed elbow is not good. The upper arm and the forearm should be taken separately.

There is a good chapter on orthodiagnosis. The chapter on therapeutics is mainly devoted to ringworm, which is very well written; other dermatological troubles are dealt with in a somewhat perfunctory manner.

In these criticisms we have not meant to carp at a book which will no doubt prove extremely useful, but we are of opinion that *x*-ray technique, radiodiagnosis and radiotherapy cannot be satisfactorily treated in any small textbook.

There is, no doubt, much that is true in the general lines of radiodiagnosis as laid down by such books, but let the authors put themselves in the position of a student endeavouring to "read" aright his radiograms, and they will not be long in seeing that much is wanting.

To such, however, as wish to acquire or perfect their skill in the management of *x*-ray apparatus and in the technique of radiography we confidently recommend this volume.

Rivers as Sources of Water Supply. By ALEX. CRUIK-SHANK HOUSTON, M.B., D.Sc. London: John Bale, Sons and Danielsson, N.D. Pp. vi. + 96.

THIS is a timely book, as many watersheds are fully appropriated, and river water will have to be used more and more for public and domestic purposes.

The author naturally devotes most attention to the Thames, and deals fully with the rise and fall of its levels, its bacterial and algal contamination, storage, filtration, sterilisation, and other important problems.

The flow of the Thames tends to be highest in February and lowest in September. The rainfall in the Thames valley tends to be highest in October and lowest in April. This "lag" of some months between the flow and the rainfall is due to the immense underground storage in the Thames Basin.

An interesting table shows the effects of sulphate of copper on various organisms. The lethal dose varies widely, thus 0.5 parts is fatal to *Uroglena*, whilst *Peridinium* requires 0.2 parts to kill it. The smaller dose will not injuriously affect drinking water, but the larger dose would be dangerous. The suggestion is thrown out that a small or medium dose whilst killing some forms of plant life may by removing them induce other forms to multiply.

The value of the process is shown not only by the water being less likely to smell of decomposition, but also in the lengthened life of the filter beds, an important economy which more than repays the cost of the copper.

Hypochlorites are a better bactericide but sulphate of copper is the stronger algicide.

The diagrams are numerous and useful, and there are excellent plates of microscopic studies of suspended matters. Heavy-faced type and ingenious spacing are used with happy effect in the index.

Glimpses of My Life in Arran: Some Experiences of a District Nurse in these remote Islands off the West Coast of Ireland. By B. N. HEDDERMAN. Bristol: John Wright & Sons, Ltd. 1917. Pp. 107.

THIS simple story of every-day happenings gives a vivid picture of life on this western outpost of the British Isles, where the Atlantic rages unchecked, and where little but

stones forms the soil; where the life of the native is hard and grey with very little relief, and where the scanty harvest of the sea and the scantier harvest of the land are reaped with ill repaid and endless toil.

The most interesting part of this book is the simply written account of the local beliefs and superstitions. Everything is put down to "overlooking," or to the omission of some semi-pagan, semi-religious rite. If a child is altered in appearance by a severe illness the parents assume it is a changeling substituted by the fairies for the healthy child, and therefore treatment would be useless.

A local custom throws light on our expression, "a hair of the dog that bit you." It is thus described:—

"A child bitten by a dog was also thought to have been 'looked upon' by a person possessing this evil influence. The bleeding patient had been subjected to intense torture by having the hair of the shaggy animal rubbed stiffly across his mouth. This was their idea of curing hydrophobia in the island. This operation must not be performed until the hair has been dragged off the dog before committing him to the deep—the latter sentence being his penalty for the offence."

The following extracts from Nurse Hedderman's account of her first visit to Inishmain show that the work of a district nurse in the islands is not a "cushy" job:—

"The breakers were beating fiercely against the curragh, dashing in my face with a blinding force which compelled me to keep my eyes shut. Up and down we went, showers of white surf flying about in all directions. I was drenched in ten minutes. . . . Just then a glimmering light in the distance showed one of the island women holding a candle—our only beacon on that dark night, and in such a perilous moment. It was then after 10 o'clock at night. We waited a long time in vain to effect a landing; but at length, during the ebbing of a wave, two of the men endeavoured to hold the curragh,

while the other directed me to get on to his back. To this I most willingly consented, for, tired and weary, I longed to reach my destination. Suddenly, as we were about to step out, a huge wave struck us. The boatman missed his footing, slipped and stumbled, and we were both plunged to the neck in the merciless torrent. After a little time the men came to the rescue, and I was dragged on to the rocks wet and shivering. I had then to trudge over a path of limestone rocks, with heights and hollows of so intricate a nature as to be in places almost impassable. When the patient's house was reached it was necessary to divest myself of my uniform, and wear the rough dress of the native women for a few days. I often think that the gratitude of the poor patient afforded a measure of compensation for such an outlay of nervous energy as was expended while attending this first maternity case in the Arran Isles on that stormy November night."

Dangers in Neck-Wear. By WALTER G. WALFORD, M.D.
Author of "Cerebral Congestion and Tight Neck-Clothing," &c. H. K. Lewis & Co., Ltd., 136 Gower Street, London, W.C. 1917.

THE author of this little brochure gives as his reasons for writing on this subject his strong feelings on the dangers of tight neck-wear. That tight neck-wear is dangerous is common knowledge; withal it is advantageous to us to be reminded of the fact, and there can be no more helpful way of doing so than by having a series of illustrative cases, which occurred in the practice of a distinguished physician, brought under our notice. All this, and more than this, is done in the book before us by Dr. Walford, for he tells of the great benefit he has seen from the use of loose neck-wear.

The results of the change in his cases are very marked indeed, and in some instances could hardly be accepted as

being wholly due to the use of loose neck-wear, if they were not given on the author's personal knowledge. We, however, think that the author is too hopeful of the benefit which we might reasonably expect from the use of loose neck-wear when attached to it are marked prophylactic properties. The book is well worth reading even though it so urgently advocates a pet theory.

The Biology of Waterworks : British Museum (Natural History), Economic Series, No. 7. By R. KIRKPATRICK, Assistant in the Department of Zoology. London. 1917. Demy 8vo. Pp. 58.

THIS, the latest number of the British Museum Natural History Economic Pamphlets, is an excellent example of how useful and interesting information may be packed into a small space without sacrifice of clearness..

Dr. Kraepelin's experiments at Hamburg are important. Wire-gauze cages were fitted to the street mains, these retained all but the very small creatures, and were removed periodically for examination. The results are summarised :—

“ The bulk of a capture usually consisted of great tangled masses of branching, horny tubules, which the employés termed ‘ pipe-moss.’ Permeating the muddy mass, which was chiefly composed of Polyzoa and Hydroids, were small Crustacea and various kinds of Worms. Some times the capture was largely made up of fresh water Sponges; Mollusca also were commonly obtained; and lastly, Eels appeared in nearly every sample.”

Mollusca often grow to a surprising extent. In the Spring of 1912 an enormous accumulation of *Dreissensia polymorpha* was removed from a 36-inch unfiltered water main at Hampton-on-Thames, the diameter of the pipe being reduced to nine inches. According to a journalistic report ninety tons of shells were removed.

The illustrations are well chosen and unusually good.

PART III. MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

“THE PHYSITIANS HOLIDAY”: CANICULAR VACATIONS AND IRISH HEALTH RESORTS.

By JOHN KNOTT, A.M., M.D., Ch.B. & D.P.H. (Univ. Dub.) ;
F.R.C.S.I. ; M.R.C.P.I. ; M.R.I.A., &c.

(Continued from Volume CXLIV., No. 549, page 180.)

BUT the present altered conditions of life—of “here and everywhere”—have forced the formerly enthusiastic Continental pilgrims of our British Isles not exactly to “think furiously,” but more slowly and philosophically, on this and kindred subjects. Accordingly, the relative merits and attractiveness of our (present very eligible and formerly very famous) Irish Health Resorts should regain their due recognition. The fact awakes the instructive reminiscence of the immeasurable changes in the habits, manners, and *modus vivendi*—of the general conditions of human existence, and the environment thereof—which existed in our Irish metropolis in the generation in which Mrs. Delany, the brilliant and accomplished contemporary of Joseph Addison and Jonathan Swift, used to look forward with pleasurable anticipation to the opportunity of quietly slipping away from the truly brilliant circle of her gay literary and artistic Dublin *coterie* to the enjoyment of some days’ restful retirement with a few friends at the then widely celebrated Lucan Spa. And here the reader must be reminded that even as far back as 1757, when Dr. John Rutty published his highly appreciable volume on “The Mineral Waters of Ireland,” he had already

found reason to regret the fact that the popularity of the formerly so famous Lucan Health Resort was already on the wane. Nevertheless, we find that that eminent physician and naturalist, who had collected with enthusiastic industry more information regarding the mineral springs of all parts of the known world than did any other man of his day, testified in the most emphatic terms to the very high degree of confidence in which he held the healing and health-restoring properties of the "ferruginous" waters of the Lucan spring.

Under the unprecedented circumstances at present existing, I would accordingly embrace the opportunity of urging upon my fellow-countrymen the extreme desirability of setting the right example by *not* underrating—after the grotesquely unjust and unpatriotic methods of too many of the past generations—the value of the therapeutic gifts which Nature has so freely bestowed among our Irish Mineral Springs. The Irish public should be kept continuously in mind of the fact that the properties of those curative waters, with the sources of which nearly every Irish county is dotted, can well bear skilled critical comparison with the now notorious qualities—some, of course, real ; but by far the greater number imaginary—of the vast array of Continental (and English and American) springs ; all of which have been so vigorously and continuously discussed, and so prominently retained in the public eye, by so many successive relays of loudly industrious journalists and book-wrights. The simple fact is that Nature has really done everything for a very large number of Irish Mineral Springs and sea-side Health Resorts. The scenery and general environment of many are well worthy of the most inspiring poetic and historic traditions of our Emerald Isle.

Some general facts and suggestions regarding the use and abuse of Mineral Springs may here be parenthetically introduced—with possible advantage to the inquiring reader who has not given the subject any previous special consideration. This great advantage of a superficially attractive environment is, of course, very obvious to every one—who thinks. And the previously *hunted* victim of hurry and worry who escapes thereto for a temporary refuge, will often be easily persuaded that the rapid genesis of the long missing consciousness of euphoria is really due to the prescribed imbibition. Then

the skilful provision and diplomatic application of all the modern comforts and æsthetic attractions suited to the exacting temperament of the health-seeker, and appropriate to the local environment, can be made to convey specially soothing sensations to the previously unstrung nervous system. The cumulative experimental knowledge of these really simple, and profoundly important, facts has enabled the speculative owners and managers of localities which Nature had furnished with Mineral Springs, and environing "possibilities," to increase the attractiveness of their respective shows year after year—with increase of sanative profit to their visitors as well as of financial profit to themselves. Anticipation of all conceivable requirements ; perfect, prompt, and cheery attendance ; domiciliary brightness within ; horticultural decoration without—all such, and all other *adjuvantia*—seldom fail collectively to impress the health pilgrim with at least a transient tendency to believe in the possibilities of miraculous phenomena. Then the internal use of the waters—even of those whose properties have been greatly overrated or quite erroneously estimated—cannot fail, when judiciously employed under skilled care and supervision, to have highly beneficial effects on the visitor whose system has been affected by the physiological debility—want of "tone," loss of "elasticity"—induced by prolonged over-application : physical or mental, or both ; and whose circulation and tissue-spaces have, in consequence, become surcharged with effete organic products : the *débris* and cinders of the human furnace overtaxed by muscular exertion ; or from failure of the necessary vasomotor control which inevitably accompanies the condition to which our imaginative trans-Atlantic brethren have applied the picturesquely descriptive term of "brain-fag ;" or by the presence of an excess of the unassimilated products—or by-products—of over-nutrition, which had been produced and piled up more rapidly than they could be removed by the normal physiological activity of the emunctory organs. Also, the gaseous mineral waters exercise a pleasantly stimulating effect on the mucous membrane of the stomach—and, to a less degree, of the whole alimentary canal ; and the fillip thus supplied undergoes a "sympathetic" transmission to, and throughout, even the whole system at large. But, like all other

stimulants, they tend, upon over-indulgence, to exhaust the physiological functions, and inhibit the power of "elastic rebound" of the tissues which they had pleasantly and profitably titillated in the early stage of their application. Thus they are found to lead to "fatigue" of the gastric mucous membrane; a condition which tends to demand—often but too effectively—the employment of some still more potent agency in the effort to arouse its flagging normal powers.

The claims of the merely *thermal* springs, the waters of which owe their efficacy either wholly or chiefly to their elevated temperature, will often be found to appeal less successfully to popular estimation. The hot springs of Bath have had, indeed, a peculiarly interesting as well as chequered history—drawn out through a long period of time: from the days of the auspicious culture of the conquering Romans, down to their modern galvanisation into social fame under the gorgeous patronage of Beau Nash. But they sadly declined in reputation when that hero of haberdashery ceased to wield the sceptre of fashion of English attire and etiquette which he had so long borne there with autocratic (and ruthlessly tyrannical) sway.

But the most significant fact in connection with my present theme is that, when Rutty's book was published—exactly ten years more than a century and a half ago—the waters of many Irish Mineral Springs, of which the very name has been allowed to pass into oblivion, such as those of Drumsna (Co. Roscommon) and Swanlinbar (Co. Fermanagh), actually possessed a far higher therapeutic reputation than did those of Buxton or Harrogate. This striking contrast of progression and retrogression should be strongly impressed on the minds and memories of our fellow-countrymen; side by side with the correlated fact that the very impressive reversal of relative position has been wholly due to superior *enterprise* and vigour of *advertisement*. Dr. John Rutty, of Dublin, was the first to discuss thoroughly, in the fullest light of the most advanced scientific and clinical knowledge of his time, the physical properties and therapeutic possibilities of all known "*Mineral Waters*." In the same year of 1757, he published in London the massive quarto volume, *A Methodical Synopsis of Mineral Waters*;

and in Dublin a substantial octavo ("Printed for the Author") which deals with the *Natural, Experimental, and Medicinal History of the Mineral Waters of Ireland*—an examination of which is more than likely to cause some sad surprise to the previously uninitiated Irish patriot of the present day. For we are there reminded that the Venerable Bede had called attention to the existence of *hot springs* in Ireland; while in the writer's own day the only one of its class known was that of the borough town of Mallow—a *locus* of which the political activity would seem to have easily survived the therapeutic fame—"together with two tepid springs in the County of Dublin." Rutty quotes—with approval—the opinion of the celebrated therapist Baccius, who had affirmed that use of the "temperate waters" is "attended with less danger," and accordingly demands "less caution than the hotter baths, such as Aix-la-Chapelle, Bath, &c." And he follows up this general statement with the very practical item of information, that: "whereas several of the hot Baths are remarkable for extenuating gross habits, divers of these, on the contrary, by bringing the humours to the circumference, do fatten lean ones." He ends a discussion of the therapeutic properties of the *Acid Waters*, of which some Irish Springs presented good specimens, by a quotation from Tabernæmontanus (furnished by Bauhin of ileo-cæcal-valvular immortality), who had arrived at the conclusion, after careful study of "waters not strongly, but slightly impregnated with Vitriol," that:

"Vim habent adstringendi, contrahendi, extergendi, glutinandi, iisdem fere cum alumine prædita facultatibus, sed efficacioribus, linguam enim magis contrahunt majoremque habent acrimoniam: Eæ si bibantur velin Balneis administrentur prosunt ad Suffusionem, Vertiginem, Epilepsiam, Paralysim, Sputum Sanguinis, Hæmorrhagiam Uteri & Hæmorrhoidum; Nauseam & Vomitum compescunt: utiles Melancholicis, mente captis, insanis; tollunt Cachecticorum & Ictericorum foedos colores: Hepaticis opitulantur & quibus sudores foetidi molesti sunt: hircum alarum emendant.

"Ex iis Balneum confert Ulceribus depascentibus, Cancris Fistulis; mundant, extergent, glutinant. Scabiem malignam Elephantiasi similem omnemque adeo Psoram, Scabiem ac Pruritum Balneo & Potu: Maculas, Serpiginem, partium

obscoenarum pruritum & putrida Ulcera lotione frequenti curant."

Of the individual Irish Springs, one of the more copiously discussed is that of Drumsnave (Drumsna), above referred to, which was also known as the Mount Campbell water. We are told that this "spring, which for the great strength of its sulphureous impregnation, and the happy successes that have hitherto attended its use in the Cure of divers stubborn diseases, demands our particular attention, as being one of, if not absolutely, the strongest sulphureous waters in *Ireland*, and yields water, enough to supply great numbers for both drinking and bathing." The odour was "like the smell of the washings of a foul gun," while it had a taste like rotten eggs—much stronger, he adds, than that of the water of Swadlingbar, or of any of the other (numerous) "sulphureous waters of the County of Fermanagh." This fact may furnish a plausible explanation of the preferential annual visit of local friends to Lisdoonvarna—for a course of less maladorous beverages. Then it possessed the very impressive physical peculiarity—which inevitably verged on the mystical (or later *mesmeric*) in the popular eye and mind—that "the water is as clear as crystal, tho' before rain it grows white." Thus it came to pass that the collective qualities of the Drumsna Spring so far satisfied that thoroughly scientific physician as to elicit the forcible testimony, that : "it has not been so much used as the Swadlingbar water, or as it deserves." He had arrived at the conclusion that the Drumsna "water must be antacid or a sweetener of acidities, detergent, saponaceous, aperient, attenuating and balsamic"—a view which he demonstrates by the production of a number of very interesting clinical records by way of corroborative evidence—adding in a tone of evident regretfulness : "tho' it has not been so much used as the Swadlingbar water, nor as it deserves." Of the last-named water (of Swadlingbar, now Swanlinbar), we are told that it "justly challenges the first place among the sulphureous waters of Ireland ;" and the author draws "a very impressive comparison between the contents of this our cold sulphureous water, and the hot one of Aix-la-Chapelle," which leads to the triumphant preference of the former !

And very much so, too, with many others of the Irish

Mineral Springs—which gradually became so strangely, and so undeservedly neglected—of which even the name and local habitat have now lapsed into the realms of utter oblivion. Like so many of the best products of this Island, the well-grounded reputation of Irish Mineral Waters gradually faded as the facilities for Continental travel increased ; and the doom of these Resorts was definitely sealed by the rapid disappearance of all fashionable patronage after the establishment of the sadly ill-starred Union of the Sister Islands. These facts should surely be brought into the scientific lime-light under the present special circumstances, when so large a number of the most popular—most *fashionable*—of the Continental Health Resorts are hopelessly (some by no means undeservedly) excluded. A very frequent reproach against the collective national conduct of this our insular community of “Saints and Scholars” was long ago formulated in the incisive phrase : *Hibernia incuriosa suorum* ; and even now, when a very active movement in the pursuit of ideals—attainable or otherwise—has been brought into prominent evidence, it may well be questioned whether any party or faction has up to the present displayed a well-directed devotion to the most truly sacred duty of all Governments, as the acting Representatives of Divine Justice : the arrangement of the right persons and most suitable things in their appropriate places. And I would suggest that one of the duties of every patriotic Irishman at the present moment is to contribute to the home recognition of one of our specially valuable national assets—the Mineral Springs and Health Resorts of Ireland, which were so well known and appreciated a century and a half ago. This view-point, which I adopted many years ago, and has been permanently before my mind’s eye in the long interval, has been specially emphasised by the perusal of a booklet now before me : *Le Bluff des Stations Thermale Austro-Allemandes*, by Drs. Charles & Louis Lavielle of Dax. The text represents, perhaps, as the title prepares one to expect, rather a vigorous attack on Austro-German *Resorts* and their management—and artificial celebrity—than a mere medical and scientific estimate, and special advocacy, of the superior merits and patriotic claims of French Health Resorts—as compared with those of the thoroughly objectionable Austro-German “Stations Thermale” whose

unscrupulous (even criminal) owners and managers have succeeded by continuous and untruthful advertisement in forcing them upon the estimation of a gaping public. A Preface has been contributed by Onesime Reclus—and it may be said to represent the cream layer of the thoroughly pasteurised contents of the mentally nutritious text. For in the opening paragraphs we find it is thus written : “ On savait, ou plutôt on aurait dû savoir que les Allemands sont grossiers, gloutons, ivrognes, pilleurs et cruels. 1870 nous en a donné mille exemples, et 1914, 1915, 1916, un million de preuves nouvelles. Mais on ignorait leur extraordinaire indignité commerciale. Reclamiers, épateurs, piaffeurs, bliffeurs, puffistes, esbrouffeurs ils ont prostitué jusqu’ à la sainteté du recours en grâce des malades et des mourants. S’ils n’ont point empoisonné leurs fontaines de santé, ils les ont truquées formidablement. C’est pourquoi leurs eaux minérales . . . thermales ou non, reçoivent bien plus de dolents que celles de notre France modeste et parfois indifférente.”

This spasmodic ebullition savours, of course, of the “atrocity” feeling which is kept at a violent heat by close personal contact with the horrors of a war of unprecedented magnitude and destructiveness—and with a hereditary enemy whose claims on a whole-hearted detestation have been accumulating and increasing for generations at a geometrical rate of progression. And I would hesitate long before suggesting to my fellow-countrymen the employment of corresponding verbal demonstrations, even when most fully deserved. For they do not blend well with the language of scientific description—while they are wholly outside the boundaries of ratiocination and experimental research, to say nothing of those of “culture” and social refinement. But the fact cannot be denied that they represent a thoroughly waked-up patriotism ; which under skilled guidance can be diverted into profitable channels. The earnest Irish patriot of the present day has some sound reason for the employment of vitriolic language in directing attention to the lethargic neglect into which our Irish “*Stations*” have been too readily allowed to fall, and the want of initiative which has gone to inhibit the recrudescence of their well-deserved fame. I have specially referred to two only in the

preceding paragraphs ; but this was merely from the impossibility of "proportional representation"—the result of the embarrassment of riches. Some readers on the other side of the Irish Sea may have heard of Athlone—in connection with Cromwellian or Williamite pacification of Ireland. I wonder how many know that the Athlone waters of 150 years ago were as famous as those of Harrogate. Those interested in the heroes of literature know that Clonmel was the birth-place of the author of *Tristram Shandy* ; how many of such votaries of knowledge are aware of the fact that the Clonmel Spa of his day, had a reputation as high as that of Buxton ? Scores of other springs have earned approximately corresponding reputations. But I believe that I have said enough to call attention to a great want—which can be readily supplied at any time ; from reliable material which silently implores (or waits) to be used for one of the best of humane and patriotic purposes.

AN EPITAPH ON A MEDIEVAL PHYSICIAN.

IN the *Quarterly Review* for April, 1917 (No. 451), there is an interesting article on the Travels of Sir John Mandeville, a physician who died in the year 1400, and who was therefore almost exactly contemporary with Geoffrey Chaucer (1328-1400). The article is from the pen of Professor Paul Hamelius of Liège. The writer is inclined to accept the evidence of the tombstone of the worthy medical knight in the church of the Guillemins near Liège as genuine, even if the facts stated in the epitaph upon it may have been coloured, as epitaphs are apt to be, by the piety of survivors. The epitaph itself, as reconstructed from various readings by Dr. Albert Bovenschen (*Zeitschrift der Gesellschaft für Erdkunde*, Berlin ; Reimer, 1888), runs as follows ;—"Here lies the gentle Sir John Mandeville, otherwise called With the Beard [Master John ad Barbam], Knight, lord of Camp[er]di, a native of England. He was learned in physic, much addicted to prayer, and left large legacies to the poor. After travelling nearly over all the world, he died in Liège on November 17th, 1372." The reader will notice the discrepancy in the date of the death of "the English Ulysses, Sir John Mandeville, Knight," as Professor Hamelius calls him

ROYAL ACADEMY OF MEDICINE IN IRELAND.

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General Secretary—J. A. SCOTT, M.D., F.R.C.S.I.

SECTION OF STATE MEDICINE.

President—W. A. WINTER, M.D.

Secretary—T. P. C. KIRKPATRICK, M.D.

Friday, April 18th, 1917.

High Explosives, T. N. T., its Toxic Action in Munition Workers, Detection in Urine (with experiments.)

DR. WALTER SMITH read a paper with the above title. Attention was first drawn to the poison-gases and volatile substances used in the British Army during the present war, and a list of them was given. After a short historical sketch of explosives, the chief properties of picric acid and picrates were demonstrated. Picrate of lead detonates suddenly and loudly when heated. The composition and properties of "smokeless powder" and of "cordite" were described, and shown experimentally. The two chief sources of high explosives are:—(a) Members of the fatty (aliphatic) group—viz., cellulose and glycerin. (b) The hydrocarbons of the aromatic (benzene) group. The organic products employed are either, (1) true nitrates, or (2) nitro-compounds, and the essential differences between these two groups were explained. Pyroxylin (B. P.) is di-nitro-cellulose, gun-cotton is tri-nitro-cellulose. Practically, most violent propellants contain nitro-cellulose, wholly or partly gelatinised.

The term *nitro-glycerin* is a chemical misnomer, for it is a true organic nitrate, or ester. Among the aromatic group the three important parents of explosives are:—Benzene (benzol), toluene (toluol), and phenol (carbolic acid). The

writer described the results of two observations made upon himself by swallowing 6 grs. of picric acid in 2 gr. doses, at intervals of some hours. No harm followed. After some hours the urine became orange-coloured, like that of a mild case of jaundice. It was free from albumen or bile pigment. Picric acid as an explosive has been replaced by tri-nitro-toluene (T. N. T.), which is more stable, and does not attack metals. Many cases of illness have followed in the wake of its manufacture among munition workers. Locally, it causes dermatitis.

When absorbed, mainly through the skin, it leads to serious digestive trouble. Furthermore, it induces haemolysis and cyanosis. The brunt of the mischief falls on the liver, and the lesion appears to lie somewhere between a sub-acute yellow atrophy and multi-lobular cirrhosis. Jaundice appears, and ascites sometimes supervenes, and haemorrhages occur in various situations. The urine is dark, and may contain albumen as well as bile. Death usually takes place about three weeks after the first appearance of jaundice.

Tests for T. N. T.—In the free state a weak (ethereal) solution strikes a deep red with KOH, preferably in alcoholic solution. In the urine, T. N. T. does not exist in the free state. It can be detected by Webster's test, by acidifying the urine with dilute H_2SO_4 , and extracting with ether. The ethereal solution will respond to the potash test.

The writer on two occasions took 3 grs. of T. N. T., in 1 gr. doses, at intervals. After some hours the urine became orange-coloured: and in reaction, free from albumen and bile pigment. The ethereal extract from the acidified urine gave a bright red with potash, which had little, if any, effect upon the urine prior to acidification.

DR. NESBITT thanked Professor Smith for the valuable information that he had given the section on a subject of great importance, and about which it was difficult to obtain accurate knowledge.

DR. W. M. CROFTON described the symptoms presented by several patients who had been accidentally poisoned by cordite fumes. He inquired whether any satisfactory treatment had been found for persons suffering from poisoning from the fumes of high explosives.

DR. LAW stated that soldiers sometime produce in themselves disordered action of the heart by eating cordite.

DR. SMITH, in reply, stated that he had no personal experience of the treatment of persons suffering from T. N. T. poisoning.

Burns and Scalds as a Cause of Child Disablement and Death.

SIR JOHN MOORE read a paper on this subject. He submitted a statement, prepared for him by the Registrar-General for Ireland, showing the number of deaths from burns or scalds registered in the Dublin Registration Area during each of the five years, 1912-1916. The total deaths from these causes of persons of all ages were 227, including 123 deaths of children under 5 years: the latter figure representing 54.2 per cent. of all these 227 deaths.

In the Meath Hospital, during the year ended March 31, 1917, twelve children had been admitted to the Smyly Children's Ward suffering from burns or scalds. Of them, 3, or 25 per cent., had died. The Meath was only one of the ten Clinical Hospitals in Dublin, in which category two large Children's Hospitals are not included. Something more is wanted at Coroners' Inquests into fatal cases of burns and scalds among young children than a mere colourless verdict of "Accidental Death." The laws on the subject *should be put* into action. [This communication was published in full in the number of this Journal for May, 1917, Vol. 143. Page 313.]

DR. LAW stated that in the Colonies in which he had worked deaths of children were more common than they are at home.

DR. ROWLETTE stated that in his opinion the only possible way of lessening this cause of child death was to form a public opinion which would compel people to adopt the precautions recommended, and induce the Government authorities to inflict the statutory penalties on those who neglect to do so.

DR. NESBITT expressed the opinion that the accidents were due more to the wholly unsuitable conditions in which the poor people live than to the carelessness of the parents.

THE PRESIDENT also pointed out the difficulties of carrying out the provisions of the Children's Act under the conditions that exist in a city like Dublin.

SANITARY AND METEOROLOGICAL NOTES.

VITAL STATISTICS.

For four weeks ending Saturday, September 8, 1917.

IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended Saturday, September 8, 1917, in the Dublin Registration Area and the eighteen principal provincial Urban Districts of Ireland was 14.5 per 1,000 of the aggregate population, which for the purposes of these returns is estimated at 1,127,268. The deaths from all causes registered in the week ended Saturday, September 8, and during the period of four weeks ended on that date, respectively, were equal to the following annual rates per 1,000 of the population :—Nineteen Town Districts, 14.5 and 13.6 ; Dublin Registration Area, 17.9 and 16.4 ; Dublin City, 19.0 and 17.3 ; Belfast, 13.3 and 12.2 ; Cork, 12.9 and 12.9 ; Londonderry, 11.7 and 13.0 ; Limerick, 10.8 and 14.9 ; and Waterford, 11.4 and 17.6.

The deaths from certain epidemic diseases—namely, enteric fever, typhus, small-pox, measles, scarlet fever, whooping-cough, diphtheria, dysentery, and diarrhoeal diseases—registered in the nineteen town districts during the week ended Saturday, September 8, 1917, were equal to an annual rate of 2.0 per 1,000. Among the 100 deaths from all causes in Belfast were 1 from enteric fever, 4 from whooping-cough, and 8 from diarrhoea and enteritis of children under 2 years. The 19 deaths from all causes registered in Cork included 1 from whooping-cough and 1 from diarrhoea and enteritis in a child under 2 years. Of the 9 deaths from all causes registered in Londonderry 2 were from diarrhoeal diseases.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock and Kingstown. The population of the area is 399,000.

In the Dublin Registration Area the births registered during

the week ended September 8, 1917, amounted to 180—90 boys and 90 girls, and the deaths to 144—79 males and 65 females.

DEATHS.

The deaths registered, omitting the deaths (numbering 6) of persons admitted into public institutions from localities outside the Area represent an annual rate of mortality of 17.9 per 1,000 of the population. The rate for all deaths registered during the thirty-six weeks of 1917 was 20.7, while in the corresponding period of the preceding ten years, 1907-1916, it had been 23.0.

The 137 deaths appertaining to the Area included 2 from whooping-cough and 22 from diarrhoeal diseases, the latter figure including 21 deaths of children under 2 years old. In the three preceding weeks deaths from whooping-cough had numbered 0, 1, and 0, and deaths from diarrhoeal diseases 25, 38, and 26 respectively.

Tuberculosis caused 15 deaths, as against 17, 25, and 13, respectively, in the three weeks preceding. Of the 15 deaths ascribed to tuberculosis, 12 were referred to pulmonary tuberculosis, 2 to abdominal tuberculosis, and 1 to disseminated tuberculosis.

Twelve deaths were caused by cancer, 2 by simple meningitis, 4 by pneumonia (2 by broncho-pneumonia, 1 by lobar pneumonia, and 1 by pneumonia, type not distinguished); 14 by organic diseases of the heart, and 13 by bronchitis.

Among deaths of infants under one year old, 3 were ascribed to convulsions, 1 to premature birth, 8 to congenital debility, 2 to congenital malformations, and 19 to diarrhoea and enteritis.

Three deaths were due to violence, including 1 death caused by a vehicle and 1 by gun-shot wound.

Fifty of the deaths registered during the week appertaining to the Area were of children under 5 years of age, 38 being infants under one year, of whom 2 were under one month old. Thirty-two deaths of persons aged 65 or upwards were registered, including 27 deaths of persons of 70 years or upwards.

Of the 137 recorded deaths 55 occurred in hospitals and other public institutions.

STATE OF INFECTIOUS DISEASES.

The following returns of the number of cases of Infectious Diseases notified under the "Infectious Disease (Notification)

Act, 1889," and the "Tuberculosis Prevention (Ireland) Act, 1908," have been furnished by the respective sanitary authorities:—

TABLE I.—SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area—(viz., the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock and Kingstown), and in the Cities of Belfast, Cork, Londonderry, Limerick, and Waterford, during the week ended September 8, 1917, and in each of the preceding three weeks.

A dash (—) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Measles	Rubella or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain) ^a	Influenza or Typhoid Fever	Erysipelas	Puerperal Fever	Whooping-cough	Cerebro-spinal Fever	Diarrhoeal Diseases	Pulmonary Tuberculosis	Total
		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
City of Dublin	Aug. 18	—	—	2	—	—	1	—	—	5	4	—	—	—	—	22	34
	Aug. 25	—	—	—	—	—	4	—	—	—	—	—	—	—	—	18	27
	Sept. 1	—	—	1	—	—	2	—	—	—	—	—	—	—	—	15	27
	Sept. 8	—	—	8	—	—	1	—	—	—	—	—	—	—	—	25	39
Rathmines and Rathgar Urban District	Aug. 18	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
	Aug. 25	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
	Sept. 1	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	3
	Sept. 8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pembroke Urban District	Aug. 18	1	—	—	—	—	1	—	—	—	—	—	2	—	—	—	4
	Aug. 25	—	—	—	—	—	—	—	—	—	—	—	18	—	—	—	18
	Sept. 1	—	—	—	—	—	—	—	—	—	—	—	7	—	—	—	7
	Sept. 8	—	—	—	—	—	—	—	—	—	—	—	7	—	—	—	7
Blackrock Urban District	Aug. 18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Aug. 25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Sept. 1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Sept. 8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Kingstown Urban District	Aug. 18	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
	Aug. 25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
	Sept. 1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—
	Sept. 8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City of Belfast	Aug. 18	—	—	—	7	—	—	2	—	—	4	4	—	—	—	—	17
	Aug. 25	—	—	—	3	—	—	4	—	—	6	1	—	—	—	—	15
	Sept. 1	—	—	—	7	—	—	1	—	—	2	1	—	—	—	—	12
	Sept. 8	—	—	—	6	—	—	2	—	—	1	3	—	—	—	—	13
City of Cork	Aug. 18	—	—	—	1	—	—	—	—	2	3	1	—	—	—	—	11
	Aug. 25	—	—	—	1	—	—	—	—	2	3	1	—	—	—	—	14
	Sept. 1	—	—	—	2	—	—	—	—	2	2	1	—	—	—	—	14
	Sept. 8	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	13
City of Londonderry	Aug. 18	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	2
	Aug. 25	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	5
	Sept. 1	—	—	—	9	—	—	—	—	—	—	—	—	—	—	—	9
	Sept. 8	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
City of Limerick	Aug. 18	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	2
	Aug. 25	—	—	—	2	—	—	—	—	1	—	—	—	—	—	—	1
	Sept. 1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	3
	Sept. 8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
City of Waterford	Aug. 18	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1
	Aug. 25	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1
	Sept. 1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	Sept. 8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

^a Continued fever.

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

Table II. exhibits the number of cases of certain infectious diseases treated in the Dublin Hospitals during the week ended September 8, 1917, and the number under treatment at the close of each of the three preceding weeks.

TABLE II.

Diseases	No. of Cases in Hospital at close of the week ended			Week ended September 8.			No. under treat- ment at close of week
	Aug. 18	Aug. 25	Sept. 1	No. admitted	Dis- charged	Died	
Enteric Fever	20	21	25	6	2	—	29
Typhus	—	—	—	—	—	—	—
Small-pox	—	—	—	—	—	—	—
Measles	20	15	9	4	5	—	8
Scarlet Fever	19	22	24	7	8	—	23 ^a
Diphtheria	18	17	18	1	4	—	15
Pneumonia	26	25	28	3	9	—	22

^a Exclusive of 5 patients in "Beneavin," Glasnevin, Dublin, the Convalescent Home of Cork Street Fever Hospital.

From this Table it appears that the cases admitted to hospital during the week ended September 8, and the cases under treatment at its close, respectively, were as follows:—Enteric fever, 6 and 29; measles, 4 and 8; scarlet fever, 7 and 23 (exclusive of 5 convalescents at Beneavin, the Convalescent Home of Cork Street Hospital); and diphtheria, 1 and 15. Three cases of pneumonia were admitted during the week, and 22 remained under treatment at its close.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, September 8, in 96 large English towns (including London, in which the rate was 11.9) was equal to an average annual death-rate of 11.2 per 1,000 persons living. The average rate for 16 principal

towns of Scotland was 12.6 per 1,000, the rate for Glasgow being 13.0, and that for Edinburgh 11.5.

INFECTIOUS DISEASES IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended September 8. From this Report it appears that of 43 cases notified, 15 were of scarlet fever, 14 were of diphtheria, 6 of pulmonary tuberculosis, 5 of other forms of tuberculosis, and 3 of erysipelas. Among the 312 cases of infectious diseases in hospital at the close of the week were 133 of pulmonary tuberculosis, 78 of scarlet fever, 55 of diphtheria, 12 of measles, 10 of whooping-cough, 2 of erysipelas, and 2 of cerebro-spinal fever.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of August, 1917.

Mean Height of Barometer,	-	-	-	29.664 inches.
Maximal Height of Barometer (1st, at 9 a.m.),	30.149	„		
Minimal Height of Barometer (28th, at 2 a.m.),	28.800	„		
Mean Dry-bulb Temperature,	-	-	-	57.9°.
Mean Wet-bulb Temperature,	-	-	-	55.6°.
Mean Dew-point Temperature,	-	-	-	53.5°.
Mean Elastic Force (Tension) of Aqueous Vapour,	.411	inch.		
Mean Humidity,	-	-	-	85.7 per cent.
Highest Temperature in Shade (on 3rd),	-	72.0°.		
Lowest Temperature in Shade (on 27th),	-	46.0°.		
Lowest Temperature on Grass (Radiation) (27th)	41.4°.			
Mean Amount of Cloud,	-	-	-	63.2 per cent.
Rainfall (on 24 days),	-	-	-	7.577 inches.
Greatest Daily Rainfall (on 27th),	-	-	-	1.212 inches.
General Directions of Wind,	-	-	-	W., S.W.

Remarks.

August destroyed the reputation of the summer of 1917, for it turned out to be a very unsettled, rainy, and thundery month. The mean temperature, no doubt, was about the average, but the diurnal range was small—only 11.5°. This was due largely to the high percentage of cloudiness—63.2.

At the beginning of the month an area of relatively low barometric pressure gradually spread westwards to the south-

east of England from Denmark. This disturbance caused heavy rains, strong N.E. winds, and low temperatures in the Netherlands and south-eastern England. On the other hand, fine, dry, summerlike weather was enjoyed in Ireland, the west of Scotland, and the north-west of England. But on and after the 7th the weather was broken in Ireland, as a series of atmospheric depressions of ever-increasing energy came in from the Atlantic. After the 6th not a single day passed without some rainfall in Dublin, although on two occasions—the 15th and 29th—the twenty-four hours' measurement was only .004 inch (0.1 millimetre). The rainfall often took the form of torrential thunder showers, but the rainstorms of the 27th and of the early morning of Saturday, September 1st, were steady and persistent downpours.

On the 27th and 28th an atmospheric depression of quite unusual intensity for summertime passed directly across the British Isles. In both Dublin and London the barometer fell to about 28.80 inches in the early morning hours of the 28th. In Dublin the wind shifted to E. on the evening of the 27th, and subsequently backed through N.E. to N., blowing in squalls, but scarcely with gale force. Over the south and south-east of England, however, a heavy south-westerly gale raged, doing great damage to the crops and orchards.

In Dublin the arithmetical mean temperature (59.6°) was a shade (0.1°) under the average (59.7°). The mean of the dry-bulb readings at 9 a.m. and 9 p.m. was 57.9° . The mean maximal temperature was 65.3° ; the mean minimum was 53.8° . In the fifty years ending with 1915 August was coldest in 1912 (M.T. = 54.4°) and in 1881 (M. T. = 57.0°), and warmest in 1899 (M. T. = 63.4°). In 1911 the M. T. was 63.2° . In 1916 it was 62.3° .

The mean height of the barometer was 29.664 inches, or 0.233 inch below the corrected average value for August—namely, 29.897 inches. The mercury read 30.149 inches at 9 a.m. of the 1st, and fell to 28.800 inches at 2 a.m. of the 28th. The observed range of atmospheric pressure was, therefore, 1.349 inches—an unusual range for a summer month.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 57.9° . It was 2.1° below the value for July, 1917. Using the formula, *Mean Temp. = Min. + (Max. — Min.) × .47*, the mean temperature was 59.2° , or 0.1° below the average mean temperature

for August, calculated in the same way, in the thirty-five years 1871-1905, inclusive (59.3°). The arithmetical mean of the maximal and minimal readings was 59.6° , compared with a thirty-five years' average of 59.7° . On the 3rd the thermometer in the screen rose to 72.0° —wind, N.W. to N.N.E. ; on the 27th the thermometer fell to 46.0° —wind, W. to E.S.E. The minimum on the grass was 41.4° on the 27th.

The rainfall was 7.577 inches on 24 days. The average fall for August in the thirty-five years, 1871-1905, inclusive, was 3.240 inches, and the average number of rain-days was 18. The rainfall, therefore, and the rain-days were much above the average. In 1900 the rainfall in August was very large—5.871 inches on 17 days ; in 1889, also, 5.747 inches were registered on 22 days. On the other hand, in 1884, only 0.777 inch was measured on 8 days. Up to the present year August, 1905, had held the record for rainfall in this month in Dublin, for the measurement was 7.019 inches on 22 days, 3.436 inches having fallen on the 25th. But August, 1917, now takes its place with an excess rainfall of 0.558 inch. In 1913 the rainfall was only 0.941 inch on 10 days ; in 1914, it was 3.223 inches on 17 days ; in 1915, it was 2.383 inches on 16 days ; and in 1916, 2.881 inches on 16 days.

Fresh winds were noted on 9 days, but never quite attained the force of a gale (8). Temperature reached or exceeded 70° in the screen on 4 days, and on 3 days it fell below 50° . A solar halo was seen on the 16th ; a lunar halo on the 29th. Thunderstorms occurred on the 10th, 12th, 14th, 18th and 19th. Hail fell on the 18th. Lightning was seen on the night of the 27th. A fine meteor was seen at 9 10 p.m. of the 19th. Large sunspots were observed on several occasions. Parhelia were seen in Dublin on the afternoon of the 24th.

The rainfall in Dublin during the eight months ending August 31st amounted to 20.892 inches on 124 days, compared with 22.031 inches on 152 days in 1916, 19.265 inches on 134 days in 1915, 14.467 inches on 131 days in 1914, 16.672 inches on 127 days in 1913, 22.088 inches on 150 days in 1912, 11.592 inches on 109 days in 1911, only 9.455 inches on 96 days during the same period in 1887, and a thirty-five years' average (1871-1905) of 17.950 inches on 131 days.

Dublin, the observer, Mr. Henry A. Lavelle, reports that the mean height of the barometer was 29.683 inches, the range of atmospheric pressure being from 30.160 inches at 9 a.m. of the 1st to 28.882 inches at 9 p.m. of the 27th. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 60.0°. The arithmetical mean of the daily maximal and minimal temperatures was also 60.0°, the mean maximum being 67° and the mean minimum 53°. The screened thermometers rose to 75° on the 3rd and fell to 44° on the 27th. On the latter date the grass minimum was 35.0°. Rain fell on 26 days to the amount of 7.350 inches, the greatest fall in 24 hours being 1.193 inches on the 27th. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 150.9 hours, of which 11.7 hours occurred on the 4th. The mean daily duration was 4.9 hours. The mean sub-soil temperatures at 9 a.m. were—at 1 ft., 61.5°; at 4 ft., 58.9°.

At Ardgillan, Balbriggan (210 feet above sea-level), Captain Edward Taylor, D.L., registered 6.79 inches of rain on 22 days, the greatest fall in 24 hours being 1.09 inches on the 10th. The rainfall was 3.38 inches above the average of 21 years (3.48 inches), while the rain-days were 5 over the average. Since January 1, 1917, 21.31 inches of rain have fallen at Ardgillan on 134 days, the measurement being 2.53 inches and the rain-days 9 more than the average. The thermometers in the screen rose to 69.9° on the 6th, and fell to 43.8° on the 27th. The wettest August at Ardgillan previous to 1917 was in 1905, when 6.89 inches fell on 22 days; the driest was in 1913, when only 0.41 inch fell on 9 days.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was 6.90 inches on 24 days, of which 22 were consecutive. The heaviest fall in 24 hours was 1 inch on the 31st. The rainfall at Malahide in 1917 so far amounts to 18.73 inches on 121 days. The measurement for the past month was exceeded only once by Mr. Bateman's records—namely, in August, 1905, when it was 7.181 inches.

At Stirling, Clonee, Co. Meath (231 feet above the sea), Mr. J. Pilkington recorded a rainfall of 7.64 inches on 26 days. The largest measurement on any one day was 1.32 inches on the 31st; 1.12 inches fell on the 10th and 1.08 inches on the 27th. In the eight months ended August 31, the rainfall at

Clonee measured 21.70 inches on 132 days, compared with 17.55 inches on 122 days in the same period of 1914, 19.57 inches on 121 days in 1915, and 24.43 inches on 155 days in 1916.

At the Ordnance Survey Office, Phoenix Park, rain fell on 27 days to the amount of 7.290 inches, the greatest rainfall in the 24 hours being 1.240 inches on the 27th. The total duration of bright sunshine was 155.1 hours, the greatest daily sunshine being 12.7 hours on the 4th. The thermometer rose to 73.2° in the screen on the 3rd, and fell to 38.8° on the 27th.

Miss Mary Love measured 7.56 inches of rain on 27 days at Cheeverstown Convalescent Home, Clondalkin, Co. Dublin, the largest record in 24 hours being 1.49 inches on the 27th. On the 9th 1.18 inches fell, and 1.07 inches on the 31st.

Mr. F. Dudley Joynt recorded a rainfall of 7.215 inches on 23 days at 89 Anglesea Road, Donnybrook, Dublin. The greatest fall in 24 hours was 1.210 inches, which occurred on the 27th. On the 10th there was a fall of 1.180 inches.

Dr. Arthur S. Goff reports that at Belfort House, Dundrum, Co. Dublin, rain fell on 24 (?) days to the amount of 7.47 inches, the greatest daily falls being 1.24 inches on the 10th and 1.33 inches on the 27th. In July 1.58 inches of rain fell at Belfort House.

Mr. Harold Fayle forwards the following abstract of observations made by him during August at Sandford Lodge, Ranelagh, Co. Dublin :—

Mean Dry-bulb Temperature, -	-	-	58.7°.
Mean Wet-bulb Temperature, -	-	-	56.4°.
Mean Dew-point Temperature, -	-	-	54.4°.
Mean Vapour Pressure, -	-	-	0.423 inch.
Mean Humidity -	-	-	85 per cent.
Mean Maximal Temperature, -	-	-	67.2°.
Mean Minimal Temperature, -	-	-	53.1°.
Arithmetical Mean Temperature, -	-	-	60.2°.
Highest Temperature in Screen (3rd), -	-	-	73°.
Lowest Temperature in Screen (1st and 31st), -	-	-	47°.
Rainfall (on 24 days), -	-	-	7.44 inches.
Greatest Daily Rainfall (27th), -	-	-	1.28 inches.
Mean Amount of Cloud, -	-	-	64.0 per cent.
General Directions of Wind, -	-	-	W., S.W.

According to Mr. W. J. McCabe, the observer for the Right Hon. Laurence Waldron, at Marino, Killiney, Co. Dublin, 5.77 inches of rain fell on 24 days. The maximal fall in 24

hours was 1.27 inches on the 27th. The average rainfall at Cloneevin, Killiney, in August of the twenty-four years, 1884-1907, was 3.212 inches on 16.8 days.

According to Dr. J. H. M. Armstrong, at Coolagad, Greystones, Co. Wicklow, the rainfall was 8.72 inches on 23 days. The heaviest fall in 24 hours was 1.72 inches on the 27th. The total fall since January 1 amounts to 21.78 inches on 127 days. Thunder was heard on the 10th, 14th, 15th, 18th and 19th. There was a sea-fog on the 5th and fog on the banks on the 6th. The shaded thermometer rose to 71° on the 3rd and fell to 46° on the 26th.

At Killard, Greystones, Co. Wicklow, Miss E. E. M. Moore recorded a rainfall of 6.979 inches on 24 days. The greatest measurement in 24 hours was 1.448 inches on the 27th, but 1.053 inches fell on the 22nd.

At the Royal National Hospital for Consumption for Ireland, Newcastle, Co. Wicklow, Dr. F. O'B. Kennedy, Resident Medical Officer, reports that rain fell to the amount of 8.91 inches on 25 days, the greatest daily rainfall being 2.01 inches on the 27th. The screened thermometers rose to 72° on the 2nd and 3rd, and fell to 42° on the 27th. The mean maximal temperature was 65.2°, the mean minimal temperature was 52.2°, and the mean temperature was 58.7°. The prevailing winds were W., S.W., and S.E.

The Rev. Canon Arthur Wilson returns the rainfall at the Rectory, Dunmanway, Co. Cork, at 9.15 inches on 22 days. The largest measurements in 24 hours were 1.60 inches on the 27th; 1.07 inches on the 16th; 0.90 inch on the 22nd, and 0.86 inch on the 7th. The rainfall in the 8 completed months of 1917 at Dunmanway has been 32.80 inches on 139 days.

The first 5 days were very fine and warm, but the month as a whole was cool.

In the seven days ended on the 27th the rainfall amounted to 4.29 inches. Very few nights were wet. Contrary to what usually happens, the distinguishing feature of the rainfall was that far more rain fell in the daytime than at night. This August was the wettest summer month within the last 13 years—the nearest approach being August 1905, when 7.55 inches of rain fell.

At Mallow the rainfall for the whole month of August was 7.54 inches, of which 2.95 inches were measured on the 27th.

PART IV.

MEDICAL EDUCATION AND EXAMINATIONS IN IRELAND.

1917-1918.

MEDICAL students in Ireland, as elsewhere, have in the first instance to choose between University Degrees and Non-University Qualifications or Diplomas. Should they elect to try for a University Degree, their choice must lie between the University of Dublin, which requires a Degree in Arts before registrable Degrees in Medicine, Surgery, and Midwifery are conferred ; the National University of Ireland, which—while not requiring an Arts Degree—requires all students to pass a Matriculation Examination in Arts, before a candidate enters upon the curriculum in the three branches of Medicine already mentioned—Medicine, Surgery, and Midwifery ; and the Queen's University of Belfast, in which also a Matriculation Examination in Arts is required. Under the Regulations of the School of Physic in Ireland considerable Professional Privileges are afforded to medical students in regard to the Arts Curriculum of the University of Dublin.

Outside the Universities, the chief Licensing Bodies are the Royal Colleges of Physicians and Surgeons. The position of the Apothecaries' Hall of Dublin as a Licensing Corporation under the Medical Act of 1886 has been defined by the appointment of Examiners in Surgery by the General Medical Council at the bidding of His Majesty's Privy Council.

The Royal Colleges of Physicians and Surgeons are in a position to give a first-class working qualification in Medicine, Surgery, and Midwifery—a qualification which is registrable under the Medical Acts, which is universally recognised as one

of high merit, and the possession of which is attended by no disabilities, such as preventing its possessor from dispensing medicines or keeping open shop for the sale of medicines, if he is legally qualified to do so.

The Medical Schools in Ireland are—(1.) The School of Physic in Ireland, Trinity College, Dublin ; (2.) The Schools of Surgery of the Royal College of Surgeons in Ireland (including the Carmichael College of Medicine and the Ledwich School of Medicine) ; (3.) The University College Medical School, Cecilia-street, Dublin ; (4.) The Faculty of Medicine, Queen's University of Belfast ; (5.) The School of Medicine, University College, Cork ; and (6.) The School of Medicine, University College, Galway.

Facilities for Clinical Instruction in fully-equipped Medico-Chirurgical Hospitals exist in Dublin, Belfast, Cork, and Galway ; but, as a rule, the Schools of Medicine in Ireland are not attached to a given hospital, or *vice versa*, as is the case in London and other large centres of medical education. The student will, however, have little difficulty in selecting a hospital, in the wards of which he will receive excellent bedside teaching and have ample opportunity of making himself familiar with the aspect and treatment of disease.

The detailed information which follows is authentic, being taken directly from the published Calendars of the respective licensing bodies.

REGULATIONS PRESCRIBED BY THE GENERAL MEDICAL COUNCIL.

With regard to the course of Study and Examinations which persons desirous of qualifying for the Medical Profession shall go through in order that they may become possessed of the requisite knowledge and skill for the efficient practice of the Profession, the General Medical Council has resolved that the following conditions ought to be enforced without exception on *all* who commence their Medical Studies at any time after Jan. 1, 1892 :—

(a.) The period of Professional Studies, between the date of Registration as a Medical Student and the date of Final Examination for any Diploma which entitles its bearer to be registered under the *Medical Acts*, must be a period of *bona fide* study

during not less than five years. For the purpose of this requirement the close of the fifth year may be reckoned as occurring at the expiration of fifty-seven months from the date of registration.

(b.) In every course of Professional study and Examinations, the following subjects must be contained :—

- (I.) Physics, including the Elementary Mechanics of Solids and Fluids, and the Rudiments of Heat, Light, and Electricity.
- (II.) Chemistry, including the principles of the Science, and the details which bear on the study of Medicine.
- (III.) Elementary Biology.
- (IV.) Anatomy.
- (V.) Physiology.
- (VI.) Materia Medica and Pharmacy.
- (VII.) Pathology.
- (VIII.) Pharmacology and Therapeutics.
- (IX.) Medicine, including Medical Anatomy and Clinical Medicine.
- (X.) Surgery, including Surgical Anatomy and Clinical Surgery.
- (XI.) Midwifery, including Diseases peculiar to Women and to New-born Children. [By a recent decision of the General Medical Council the study of (XI.) must not commence till the student has held the posts of Clinical Clerk and Surgical Dresser.]
- (XII.) Theory and Practice of Vaccination.
- (XIII.) Forensic Medicine.
- (XIV.) Hygiene.
- (XV.) Mental Disease.
- (XVI.) Anæsthetics.

The General Medical Council considers that the Regulations of the Examining Bodies should be so framed as to ensure that the study of the Final Group of Subjects (VII. to XVI. above) shall extend over a period of not less than twenty-four months after the passing of the Examination in Anatomy and Physiology.

The first four of the five years of Medical Study should be passed at a School or Schools of Medicine recognised by any of the Licensing Bodies, provided that the First Year may be passed at a University, or at a Teaching Institution, recognised by any of the Licensing Bodies and approved by the Council, where the subjects of Physics, Chemistry, and Biology are taught.

A student who has, previous to registration, attended a course or courses of study in one or all of the subjects, Physics, Chemistry, or Biology, in any University, School of Medicine, or Teaching Institution recognised by any of the Licensing Bodies, may without further attendance be admitted to examination in these subjects.

A graduate in Arts or Science of any University recognised by the General Medical Council, who has spent a year in the study of Physics, Chemistry, and Biology, and has passed an examination in these subjects for the degrees in question, is held to have completed the first of the five years of medical study.

Six months' instruction or more in the Preliminary Sciences at a Teaching Institution (other than a Medical School) recognised by one of the Licensing Bodies and approved by the COUNCIL may count as six months, and no more, of the Curriculum of Professional Study, provided such instruction is subsequent to the date of passing the required Preliminary Examination in general education.

The Examinations in the Elements of Physics, Chemistry, and Biology should be passed before the beginning of the Second Winter Session.

The General Medical Council considers that no Qualification in Medicine ought to be granted without evidence of Clinical Instruction in Infectious Diseases.

The General Medical Council also considers that Instruction should be given, in the Courses of Forensic Medicine and Public Health, or otherwise, on the duties which devolve upon Practitioners in their relationship to the State, and on the generally recognised rules of Medical Ethics. Attention should be called to all *Notices* on these subjects issued by the General Medical Council.

I.

UNIVERSITY OF DUBLIN.

DEGREES AND DIPLOMAS IN MEDICINE, SURGERY, AND MIDWIFERY; AND IN DENTISTRY.

The Medical School of the University of Dublin has for its official title the name of The School of Physic in Ireland. It is officered by University Professors and Examiners and by four King's Professors appointed by the President and Fellows of the Royal College of Physicians of Ireland, acting as Trustees of the Estate of Sir Patrick Dun.

MATRICULATION.

Students cannot be permitted to attend any of the Courses of Instruction in the School of Physic in Ireland until they have matriculated. There is no special Examination; the Public Entrance together with a Term Examination of Trinity College,

or any other of the Preliminary Examinations recognised by the General Medical Council, being accepted. The Matriculation Fee is Five Shillings. It is not necessary for Students to have their names on the College Books, or to attend any of the Academical duties of the University, unconnected with the School of Physic, unless they desire to obtain a Diploma or Degree in Medicine, Surgery, and Midwifery. Students may matriculate at the commencement of either the Winter or the Summer Session. The Winter Session begins on October 1st, the Summer Session on April 15th.

WOMEN STUDENTS.

Women Students are admitted to the Degrees and Diplomas in Medicine, Surgery, and Midwifery, on the same conditions as men. A special Anatomical Department, with separate entrance, dissecting-room and a reading-room, is provided for their accommodation.

QUALIFICATIONS.

The Qualifications in Medicine, Surgery, and Midwifery, and in Dental Science, granted by the University are as follow:—

The Degrees are:—

1. Bachelor in Medicine.
2. Bachelor in Surgery.
3. Bachelor in Obstetric Science.
4. Doctor in Medicine.
5. Master in Surgery.
6. Master in Obstetric Science.
7. Bachelor in Dental Science.
8. Master in Dental Science.

The Diplomas are:—

1. Diploma in Public Health (formerly Qualification in State Medicine).
2. Diploma in Medicine.
3. Diploma in Surgery.
4. Diploma in Obstetric Science.

Candidates who have completed the prescribed Courses of study and passed all the Examinations, will be entitled, if Graduates in Arts, to have conferred on them the Degrees of M.B., B.Ch., B.A.O., on payment to the Senior Proctor of the Degree

Fees amounting to £17. A corresponding regulation applies to the Diplomas, the Fees for which are £11. They will also obtain from the Senior Proctor a Diploma entitling them to be entered on the Register of Medical Practitioners under the Medical Act, 1886.

UNIVERSITY DIPLOMAS.

Candidates for the Diplomas in Medicine, Surgery, and Obstetric Science must be matriculated in Medicine, and must have completed two years in Arts, and five years in Medical Studies.

The dates, regulations, and subjects of Examination are the same as for the Degrees.

Diplomates on completing the Course in Arts, and proceeding to the Degree of B.A., may be admitted to the Degree of Bachelor on paying the Degree Fees.

DIPLOMA IN PUBLIC HEALTH, OR STATE MEDICINE.

In the year 1870 a "Diploma in State Medicine" was instituted by a resolution of the Board of Trinity College. In 1898 it was resolved that the title of the "Diploma in State Medicine" be changed to that of "Diploma in Public Health."

The Diploma in Public Health is conferred, after examination, by the University of Dublin, upon Candidates fulfilling the conditions required by the General Medical Council.

A Prospectus of the School giving all details regarding classes, fees, &c., may be obtained by application at the office of the School of Physic, Trinity College, Dublin.

II.

THE NATIONAL UNIVERSITY OF IRELAND.

THE MATRICULATION EXAMINATION.

This Examination will be held in Dublin, and at certain local Centres selected by the Senate.

EXTRACT FROM THE STATUTES OF THE UNIVERSITY.

The University may grant the following Degrees to Students who, under conditions laid down in the Statutes and Regulations, have completed Approved Courses of Study of the prescribed duration, and have passed the Prescribed Examinations of the University and fulfilled all other prescribed conditions.

IN THE FACULTY OF MEDICINE.

Bachelor of Medicine (M.B.), Bachelor of Surgery (B.Ch.)
Bachelor of Obstetrics (B.A.O.)
Bachelor of Science, Public Health (B.Sc., Public Health).
Master of Surgery (M.Ch.)
Master of Obstetrics (M.A.O.)
Doctor of Medicine (M.D.)
Doctor of Science, Public Health (D.Sc., Public Health).
Bachelor of Dental Surgery (B.D.S.)
Master of Dental Surgery (M.D.S.)

The Degrees of M.B., B.Ch., and B.A.O. shall be conferred only at the same time and after the same Course of Study. A Student shall not be admitted to the Final Examination for these Degrees unless he—

- (a) shall have completed the prescribed Course of Study in the Faculty of Medicine, extending over a period of not less than five academic years from the date of his registration as a Student of Medicine by the General Medical Council ;
- (b) shall have passed the prescribed Examinations ; and
- (c) shall have attained the age of 21 years.

The Senate shall not confer the Degrees of M.B., B.Ch., and B.A.O. upon any person who has not pursued at the University, or in one or more of its Constituent Colleges, during at least Nine Terms, the Courses of Study prescribed for such Degrees. The Senate may accept the periods of Study pursued in any other University or School of Medicine recognised for this purpose by the Senate, equivalent in duration to not more than Six Terms, as equivalent to part of such Approved Course of Study. The periods of Study so accepted shall be deemed to have been Terms kept within the meaning of the Statute.

With the exception of the three separate periods of nine months' General Hospital Attendance to complete the prescribed twenty-seven months, in the Third, Fourth, and Fifth years, the Courses set out under the Fourth and Fifth years may be taken in a different order in regard to those years, *provided* that the regulations in respect of the Courses which must precede Practical Midwifery and Gynæcology are observed, and that the Course in Fever Cases is not concurrent with Practical Midwifery.

The systematic Courses of Medicine, Surgery, and Midwifery should be taken in the Winter of the Third and Fourth Years.

SUMMARY OF CERTIFICATES REQUIRED IN CONNECTION WITH HOSPITAL COURSES AND OTHER NON-COLLEGIATE COURSES.

The following Certificates will be required :—

- (1) Certificates of attendance at a General Hospital for three periods of nine months each, as above.
- (2) Certificate as Dresser in Surgery for six months.
- (3) Certificate as Clinical Clerk in Medicine for six months.
- (4) Certificate of the conduction of twenty cases in Practical Midwifery, and of attendance for six Months at a Midwifery Hospital.
- (5) Certificate of Gynæcological Clerk for three months.
- (6) Certificate and Notes of Fever Cases for three months (ten cases).
- (7) Certificate of practice in Vaccination.
- (8) Certificate of attendance at six *Post-mortem* Examinations.
- (9) Certificate of Clinical Ophthalmology and Otology for three months.
- (10) Certificate of attendance at a Lunatic Asylum and Notes of Cases.
- (11) Certificate of attendance at Clinical Instruction in Anaesthetics.

III.

THE QUEEN'S UNIVERSITY OF BELFAST.

DEGREES IN THE FACULTY OF MEDICINE.

STATUTES.

1. There shall be six degrees of the University in the Faculty of Medicine, viz. :—

Bachelor of Medicine (M.B.),
Bachelor of Surgery (B.Ch.),
Bachelor of Obstetrics (B.A.O.),
Doctor of Medicine (M.D.),
Master of Surgery (M.Ch.), and
Master of Obstetrics (M.A.O.).

2. The degrees of M.B., B.Ch., and B.A.O. shall be the primary degrees in the Faculty of Medicine, and shall be conferred at the same time and after the same course of study. No student shall be admitted to the final Examination for these degrees until he has shown (1) that he is a Matriculated Student of the University, (2) that he has completed the prescribed course of study in the Faculty of Medicine extending over a period of not less than five academic years from the date of his registration as a Student of Medicine by the General Council of Medical Education and Registration of the United Kingdom, and (3) that he has passed the several examinations prescribed.

3. The Senate shall not confer the primary degrees in the Faculty of Medicine upon any person who has not attended in the University during three academic years at least the courses of study prescribed for such degrees. The Senate may accept, for not more than two academic years of the required five, courses of study pursued in any other University or School of Medicine approved by the Senate.

4. Every candidate for the primary degrees in Medicine shall be required to show that he has attained the age of twenty-one years on or before the day of graduation.

5. The degrees of M.D., M.Ch., M.A.O. shall not be conferred, nor shall any of them, until the expiration of at least three academic years, or in the case of graduates of the University in Arts or Science of at least two academic years, after admission to the primary degrees in the Faculty of Medicine. Every candidate must show that in the interval he has pursued such courses of study or been engaged in such practical work as may be prescribed. Any of these degrees may be conferred by the Senate either (a) after an examination or (b) on the submission of a thesis or other evidence of original study or research to be approved by the Faculty of Medicine after an oral or other examination of the candidate on the subject thereof.

REGULATIONS.

1. All candidates for the Degrees of M.B., B.Ch., and B.A.O. shall be required to have satisfied the Examiners in the several subjects of four examinations, namely :—

The First Medical Examination.

The Second Medical Examination.

The Third Medical Examination.

The Fourth Medical Examination.

Two Examinations will be held during the year.

Candidates will not be allowed to present themselves for more than one of the Medical Examinations at the same time.

THE DEGREE OF DOCTOR OF MEDICINE.

REGULATIONS.

1. The Degree of Doctor of Medicine shall not be conferred until the expiration of at least three academic years, or in the case of graduates of the University in Arts or Science of at least two academic years, after admission to the primary degrees in the Faculty of Medicine. Every candidate must show that in the interval he has pursued such courses of study, or been engaged in such practical work as may be prescribed. This Degree may be conferred by the Senate either (a) after an examination, or (b) on the submission of a thesis or other evidence of original study or research, to be approved by the Faculty of Medicine after an oral or other examination of the candidate on the subject thereof.

2. The subjects of the examination under (a) shall be :—

The Principles and Practice of Medicine, and one other special subject to be selected by the candidate.

The special subjects shall be as follows :—

- i. Human Anatomy, including Embryology.
- ii. Physiology.
- iii. Pathology.
- iv. Pharmacology and Therapeutics.
- v. Sanitary Science and Public Health.
- vi. Forensic Medicine and Toxicology.
- vii. Mental Diseases.

The examination in Medicine shall include :—

- (a) A written paper.
- (b) A commentary upon a selected clinical case or cases.
- (c) A clinical and *vivâ voce* examination.

The examination in the Special Subjects shall include :—

- (a) A written paper.
- (b) A clinical or practical and *vivâ voce* examination.

THE DEGREE OF MASTER OF SURGERY.

REGULATIONS.

1. The Degree of Master of Surgery shall not be conferred until the expiration of at least three academic years, or in the case of graduates of the University in Arts or Science of at least two academic years, after admission to the primary degrees in the Faculty of Medicine. Every candidate must show that in the interval he has pursued such courses of study or been engaged in such practical work as may be prescribed. This Degree may be conferred by the Senate either (a) after an examination, or (b) on the submission of a thesis or other evidence of original study or research, to be approved by the Faculty of Medicine after an oral or other examination of the candidate on the subject therof.

2. The subjects of the examination under (a) shall be :—

- (1) Surgery, Theoretical and Practical, including Ophthalmology and Otology.
- (2) Surgical Pathology.
- (3) Surgical Anatomy and Operative Surgery, with the use of Surgical Instruments and Appliances.

There shall be both written and oral examinations in these branches, and a clinical examination upon selected surgical cases.

THE DEGREE OF MASTER OF OBSTETRICS.

REGULATIONS.

1. The Degree of Master of Obstetrics shall not be conferred until the expiration of at least three academic years, or in the case of graduates of the University in Arts or Science, of at least two academic years after admission to the primary degrees in the Faculty of Medicine. Every candidate must show that in the interval he has pursued such courses of study or been engaged in such practical work as may be prescribed. This Degree may be conferred by the Senate either (a) after an examination, or (b) on the submission of a thesis or other evidence of original study or research, to be approved by the Faculty of Medicine after an oral or other examination of the candidate on the subject thereof.

2. The subjects of the examination under (a) shall be:—

- (1) Midwifery.
- (2) Diseases of Women and Children.
- (3) Pathology in its special bearing on Midwifery and Diseases of Women and Children.

The examination shall consist of:—

- (1) A written examination.
- (2) A clinical examination.
- (3) An oral examination with practical illustrations, including those of instruments and appliances.

THE DIPLOMA IN PUBLIC HEALTH.

STATUTE.

The Senate may confer Diplomas in Public Health upon legally qualified medical practitioners who have pursued such courses of study and passed such examinations as may be prescribed: Provided always that the Regulations for such study and examinations are in accordance with the rules made from time to time by the General Council of Medical Education and Registration of the United Kingdom.

EXAMINATIONS.

Two examinations will be held yearly, and will consist of two parts. Candidates may present themselves for either part separately, or for both parts together at their option.

The Calendar giving all necessary information regarding entrance, examinations, lectures, fees, scholarships, prizes, &c., may be obtained, price 1/- to students.

IV.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS, IRELAND.

REGULATIONS FOR THE EXAMINATIONS IN MEDICINE, SURGERY, AND MIDWIFERY REQUIRED FOR REGIS- TRATION UNDER THE MEDICAL ACT, 1886.

These Regulations are obligatory on all Candidates commencing their Studies on or after October 1st, 1902.

PRELIMINARY EXAMINATION.

REGULATIONS.

The following are the subjects of Examination :—

I. Latin.

II. Any one of the following languages :—Greek, French, German, Italian, Irish, Dutch, Spanish, or any other modern language approved by the Board of Examiners.

III. English.

IV. Elementary Mathematics.

The Candidate, when entering his name, is required to state in what Language selected from II. he desires to be examined.

If he desires to be examined in Dutch, he must send, at least a month before the Examination, notice of the portions of the Dutch Authors he has selected.

A Candidate who proposes to be examined in a Modern Language other than French, German, Italian, Irish, Spanish, or Dutch must give notice of his proposal at least three months before the Examination.

PROOF OF AGE.

No Candidate shall be admissible to the Preliminary Examination who does not produce evidence of having attained the age of sixteen years on or before the first day of the Examination.

PRELIMINARY EXAMINATIONS ACCEPTED BY THE COLLEGES.

All Examinations in General Education recognised by the General Medical Council (a list of which will be found in the

Register of Medical Students) are accepted by the Colleges in lieu of the Preliminary Examination held by them. Information as to such Examinations may be obtained at the Branch Medical Council Office, 35 Dawson Street, Dublin.

PROFESSIONAL EXAMINATIONS.

Every Candidate is required to pass four Professional Examinations.

Candidates will be admissible to the various Examinations as under :—

First Professional Examination, not earlier than the end of the first winter session. (Fee is £15 15s.)

Second Professional Examination, not earlier than the end of the second winter session. (Fee is £10 10s.)

Third Professional Examination, not earlier than the end of the third year of medical study. (Fee is £9 9s.)

Final Professional Examination, not earlier than the end of the fourth year of medical study ; but it cannot be completed till the end of the fifth year of medical study. (Fee is £6 6s.)

No Candidate shall be admitted to any Examination within three months of his rejection in the subjects of that Examination by this or any other Licensing Body.

FINAL PROFESSIONAL EXAMINATION.

The Fee for this Examination is £6 6s.

The subjects of the Final Professional Examination are :—

Division A.—Medicine, including Fevers, Mental Diseases, and Diseases of Children.

Division B.—Surgery, including Operative Surgery and Ophthalmic Surgery.

Division C.—Midwifery and Gynaecology, Vaccination, and Diseases of New-born Children.

Before admission to the Final Professional Examination, every Candidate must have passed in the subjects of the Third Professional Examination.

Candidates are recommended to present themselves in all the subjects of the Final Examination at one time ; but a Candidate at or after the end of the fourth year may present himself in any one of the Divisions A, B, or C, provided he has completed

his Curriculum as far as concerns the Division in which he presents himself. The Examination in at least one of the Divisions must be deferred till the end of the fifth year.

Before completing the Final Examination a Candidate must have passed four years in Medical Studies other than those for the First Professional Examination.

Candidates must have passed in all the subjects of the Final Examination before any Diploma can be granted.

Each Candidate before receiving his Diplomas must produce a Registrar's Certificate, or other satisfactory evidence, that he has attained the age of twenty-one years.

EXEMPTIONS.

Candidates who have passed in any of the required subjects at Examinations conducted by any Licensing Body recognised by the Royal College of Physicians and the Royal College of Surgeons may, at the discretion of the Committee of Management, be exempted from further examination in such subjects under these Regulations.

REGULATIONS FOR CANDIDATES FOR THE DIPLOMA IN PUBLIC HEALTH.

Stated Examinations for the Diploma in Public Health commence on the first Monday of the months of February, May, July, and November.

A special Examination for the Diploma may, at the discretion of the Committee of Management, be obtained—except during the months of August and September—on application at least one fortnight before the date of the proposed Examination, and payment of £15 15s. in addition to the ordinary Fees mentioned below.

Every Candidate for the Diploma in Public Health must be a Registered Medical Practitioner. He must return his name to the Secretary of the Committee of Management under the Conjoint Scheme, Royal College of Surgeons, Dublin, one fortnight before the Examination, and lodge with him a Testimonial of Character from a Fellow of either of the Colleges, or of the Royal Colleges of Physicians or Surgeons of London or Edinburgh, together with certificates of the prescribed course of study.

Candidates registered as Medical Practitioners or entitled to be so registered after January 1st, 1890, must comply with certain Resolutions and Rules, adopted by the General Medical Council.

The Fee for the Examination is Ten Guineas, which must be lodged in the Ulster Bank, Dublin, to the credit of the Committee of Management. Fees are not returned to any Candidate who withdraws from, or is rejected at, any Examination. The Fee for re-examination is Five Guineas.

The Examination for the Diploma in Public Health comprises the following subjects:—Chemistry and Physics, Engineering and Architecture, Meteorology, Sanitary Law, Vital Statistics, Hygiene, Bacteriology.

V.

APOTHECARIES' HALL OF DUBLIN.

The Primary, Intermediate and Final Examinations are held three times a year—viz., commencing the first Monday in March, June, and November.

The Fees payable for each Examination are as follow:—

Primary Professional	..	..	..	£5	5	0
Intermediate	„	..	..	10	10	0
Final Examination	..	..	..	15	15	0

A Candidate is allowed for each Professional Examination which he has completed at any other recognised Licensing Body, except the Final.

Ladies who comply with the regulations will be admitted to these examinations.

Candidates may be admitted to a Special Examination, under special circumstances, which must be laid before the Examination Committee. If the Candidate's application be granted, an extra fee of Ten Guineas over and above the full fee is required.

Candidates already on the Register will receive the Diploma of the Hall on passing an Examination in Medicine, *Materia Medica* and Pharmacy.

Each Candidate, before receiving his Diploma, must produce evidence that he has attained the age of twenty-one years.

Licentiates of this Hall are entitled to enter as Candidates for the Fellowship of the Edinburgh Royal College of Surgeons.

All information relative to the Examinations may be obtained from the Registrar of the Apothecaries' Hall, 40 Mary Street, Dublin.

VI.

DENTAL EDUCATION AND EXAMINATIONS IN IRELAND.

UNIVERSITY OF DUBLIN.

DEGREES IN DENTAL SCIENCE.

Combined Arts and Dental Curriculum.

The University of Dublin grants the degrees of Bachelor and Master in Dental Science.

Either of these qualifications entitles the holder to be registered as a licensed Dental Practitioner.

In order to obtain the Degree of Bachelor (B. Dent. Sc.), Candidates must have completed the course for the Arts Degree (B.A.) of the University and have spent at least four years in the School of Dentistry. The Degree of Master in Dental Science (M. Dent. Sc.) is awarded after a further examination, and cannot be taken until the end of a fifth year of study.

The Dental and Arts Courses may be taken separately or concurrently.

The Degree of Bachelor in Dental Science is conferred on Students who have completed the required Courses and Examinations, and passed in Ethics and English Composition at an ordinary examination for the B.A. Degree.

The total fees in order to obtain the degree of Bachelor in Dental Science are:—

Entrance fee, Arts fees (4 years), and fee for B.A. Degree	..	..	..	£83	4	0
Lectures, Laboratory, and Hospital fees	186	18	0			
Examination fee ..	..	..	..	5	0	0
Fee for Degree ..	..	..	..	10	0	0
						£285 2 0

MASTER IN DENTAL SCIENCE.

Candidates for the Degree of Master in Dental Science must be Bachelors in Dental Science of at least one year's standing. They will be required to pass an examination in Pathology and Bacteriology, and either to carry out Dental work of an advanced

character to the satisfaction of the Examiners, or to present a thesis, to be approved of by them, giving evidence of original research on some subject connected with Dentistry.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

DIPLOMA IN DENTAL SURGERY.

The Royal College of Surgeons in Ireland grants Diplomas in Dental Surgery under revised conditions adopted by the Council on November 25, 1909, of which the following is a synopsis:—

The Candidate must be twenty-one years of age before being granted the Diploma.

The Candidate must have passed three Examinations.

1. Preliminary (identical with the Medical Preliminary).
2. First Dental. (This Examination is much the same as the Second Conjoint Professional.)
3. Final Dental Examination. Candidates are examined in General Pathology, Medicine and Surgery; Dental Surgery, and Dental Pathology, with the Materia Medica and Therapeutics applicable to Dental Surgery; Dental Mechanics and Metallurgy; Orthodontia.

Large reductions in the Special Certificates required are made in the cases of qualified Medical Practitioners.^a

^a Fuller particulars can be obtained by application to the Registrar Royal College of Surgeons, St. Stephen's Green, Dublin.

LITERARY NOTE.

THE sixth edition of "Diseases of the Skin," by Sir Malcolm Morris, K.C.V.O., has just been published in a revised and enlarged form. The book has been thoroughly revised by the author with the assistance of Dr. Ernest Dore, advantage being taken of the most recent researches in dermatology. The chapters on "syphilis" have been expanded with a view to the needs of those who are carrying out the new Official Scheme for the Diagnosis and Treatment of Venereal Diseases. Messrs. Cassell announce this revised edition as for immediate publication.

In Memoriam.

FREDERIC WILLIAM KIDD, B.A., M.D.,
UNIV. DUBL.;

PROFESSOR OF MIDWIFERY, ROYAL COLLEGE OF
SURGEONS IN IRELAND.

THE sudden death, on the evening of Wednesday, September 5th, 1917, of this esteemed and genial member of the Medical Profession caused pained surprise and poignant regret to his many friends and colleagues. After his usual day's work, he was found by his devoted wife dead in his chair in his consulting-room shortly before dinner-time.

It seems that he had intermittent glycosuria for some time, and a fall, with dislocation of the left shoulder, a month before his death had given him a great shock. There is also no doubt that anxiety for his four sons, all of whom were abroad, serving their King and Country in one capacity or another, had told heavily upon him of late.

FREDERIC WILLIAM KIDD was born at Newry, County Down, on May 3rd, 1857, so that he was in his sixty-first year at the time of his death. He was his father's namesake, and his mother's maiden name was Louisa Sydney MacMaster. In his "History of the Royal College of Surgeons in Ireland" Sir Charles A. Cameron, C.B., tells us that a tomb in Dunluce Church, County Antrim, bears the following inscription:—"Here lyeth the children of Walter Kyd, Merchant of Dunluce, Burgess of Irving. He made this Stone, tenth of March, Anno Domini, 1630." From this Walter Kyd, by birth a native of Ayrshire, both the subject of this Memoir and his late uncle, Dr. George Hugh Kidd, Editor of this Journal from November, 1861, to November, 1868, were alike descended. Their ancestors, who changed the spelling of their name to Kidd, settled about the end of the seventeenth century at Millmount, Keady, County

In Memoriam.

Armagh, where they introduced and until very recently carried on linen bleaching on a large scale.

Educated as a lad at Dundalk Grammar School, FREDERIC KIDD in due time entered Trinity College, Dublin, gaining a Junior Exhibition at entrance. His professional studies were carried on at the Carmichael School of Medicine, and at the Whitworth, Richmond, and Hardwicke Hospitals, Dublin. In 1880 he graduated in Arts in the University of Dublin. In the following year he became a Licentiate of the Royal College of Surgeons in Ireland. In 1887 he took the degrees of Bachelor and Doctor of Medicine in the University of Dublin; and, lastly, in 1889, he was admitted a Licentiate in Medicine and Midwifery of the Royal College of Physicians of Ireland.

KIDD's first professional appointment was the honourable one of House Surgeon to the Whitworth and Richmond Hospitals. He subsequently filled the post of Assistant-Physician to the Coombe Lying-in Hospital, of which famous centre of midwifery and gynaecology he served as *Master* for seven years—1893 to 1900. In appreciation of the valuable services rendered during his Mastership, DR. KIDD was afterwards appointed Consulting Surgeon to the Institution—a post which he held, together with that of Gynaecologist to the Meath Hospital and County Dublin Infirmary, till his death.

On November, 1898, DR. KIDD succeeded the late DR. Samuel Roberts Mason as Professor of Midwifery in the Schools of Surgery of the Royal College of Surgeons in Ireland. This Chair he continued to fill with conspicuous success for the remaining nineteen years of his life. He was an admirable lecturer and a remarkably successful teacher; and no wonder, for his diction was clear, his practical experience unlimited, and his manner encouraging and sympathetic. The writer of this Memoir often listened with wrapt attention to his clinical lectures at the Meath Hospital, where his dead friend and he often met as colleagues, as indeed they also did through many years at the Royal College of Surgeons.

In private practice DR. KIDD had many patients, who

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had unbounded confidence in his skill and judgment, and to whom his death must prove a very personal sorrow.

In the domain of medical polities DR. KIDD played a leading and useful part. Imbued throughout his career with the highest sense of professional etiquette and honour, he ever strove to advance the best interests of the Profession of Medicine, because he knew that in so doing he was serving the best interests of the Public as well. For many years he was one of the most active and influential members of the Irish Medical Association, on the Council of which body he served till his death. He filled the Presidential Chair for two years with a dignity and *bonhomie* which was all his own. He had also been President of the Leinster Branch of the British Medical Association. In both these high offices he did all in his power to protect the interests and to promote the welfare of the Poor Law Medical Officers of Ireland.

Although not a prolific writer, DR. KIDD contributed several valuable papers and made many verbal communications on obstetrics and gynaecology to the Royal Academy of Medicine in Ireland, of the Section of Obstetrics in which he was President for two years.

In 1888 DR. KIDD married Annie Armstrong, daughter of the Rev. John Armstrong Crozier, of Newry. He leaves four sons, all of whom, as has been already stated, are serving their King and Country. The eldest, George Montgomery Kidd, is a Civil Servant in the Malay Federated States. He volunteered for active service in the War, and now holds a Commission as Captain in the 5th Battalion of the Royal Irish Fusiliers. The second son, Frederic William, his father's namesake, is in the Indian Police (Bengal). The third son, John Armstrong Crozier Kidd, is a Captain in the Reserve, R.A.M.C.; and the fourth, William Sydney Kidd, holds a Commission as Lieutenant in the 2nd Munster Fusiliers.

In social circles in Dublin, FREDERIC KIDD was a familiar and ever-welcome figure. He was one of the original members of "The Phagocytes"—a medical

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dinner club, which was founded in February, 1891, and consists of only ten members, who dine each month, except in July, August, and September. The host of the evening may invite a limited number of guests, who must be members of the Medical Profession, to complete a dinner-party of twelve. Of that Club, KIDD was Permanent Honorary Secretary, and the Minutes of the Monthly Meetings of the Club testify alike to his abundant fund of healthy humour and his literary skill. It is characteristic of the good feeling and tact of the members of the Club that on the outbreak of the War they determined to suspend their festive gatherings, and jointly subscribed the handsome sum of £50 to the Prince of Wales's Relief Fund.

In an appreciating obituary notice, *The Irish Times*, under date September 6th, 1917, writes of our dead friend: "He was a lucid and successful teacher, and was held in high esteem by the members of his profession. From his school days he took a great interest in athletics, especially football, and while yet a schoolboy had attained such proficiency in the pastime that he was selected to play in a Rugby International match. During his course at Trinity College he also played in a Rugby International match, and on the racing track he secured a gold medal for special time in the 120 yards. DR. KIDD enjoyed a wide measure of popularity, for he was big, hearty and generous, and manly in every way."

So has passed an able physician, who was also a genial, kindly Irish gentleman.

J. W. M.

THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

NOVEMBER 1, 1917.

PART I. ORIGINAL COMMUNICATIONS.

ART. XIII.—*The Modifications undergone by Fatty Complexes in the Alimentary Mucosa.*^a By F. W. LAMB, M.D.: Assistant to Professor of Physiology, Trinity College, Dublin.

I PROPOSE to examine in outline, firstly, the problems of fat absorption which have been from time to time the subject of investigation, and the methods which have been used for their elucidation; secondly, the histological methods at our disposal; and, lastly, the results which I have obtained from the application of some of these methods together with some generalisations founded thereon.

A review of the lines of experimentation which are reported in the literature shows that a classification of methods and questions at issue may be made on the following lines:—

1. In the first place, *chemical investigations*, which have largely monopolised the field, can obviously give

^a Read before the Section of Anatomy and Physiology in the Royal Academy of Medicine in Ireland on Friday, May 25, 1917.

information on the more general points of fat metabolism—the general characters of fatty complexes; the existence and extent of desaturation in the total fat content; various quantitative comparisons between protoplasmic and dépôt fat; the distribution of fatty bodies during fat transportation, and problems of like nature.

Yet the application of purely chemical methods has afforded only comparatively meagre results when applied to fat absorption questions. For example: since Munk (1) showed from examination of the thoracic duct chyle that the intestinal tract was the site of neutral fat synthesis, and Moore and Rookwood (2) approached the site of the process in the intestinal epithelium by an examination of the chyle in the mesenteric lacteals, little was done to investigate the more intimate cellular phenomena until the publication of a paper by Noll (3).

2. On the other hand it is obvious that it is from *chemical and physical histology* we must expect results when dealing with intracellular processes.

The difficulties and fallacies of such methods are notorious, but the order of the phenomena is microscopical.

The main problems to be solved may be divided into the nature and extent of changes undergone by fatty substances in the intestinal lumen, the method of actual transport into the alimentary mucosa, the phenomena of the deposition of fatty bodies in the epithelial cells, and the relation of the different parts of the cells thereto; the transport from these cells into the lacteals, the physical and chemical properties of the fatty substances in the lacteals and in the thoracic duct.

I do not propose to refer in the present paper to several other problems which have been the subject of a certain small amount of work—for example, the changes taking place in lymph glands and the possibility of direct absorption into the blood.

The set of phenomena more immediately concerning me is that presented by the fatty intracellular globules and

the staining reactions which can be obtained from the methods at our disposal.

When we review these latter it is convenient to classify them into—(1) methods which I propose to call morphological, that is, those which afford evidence of the presence of fatty bodies in tissues, but which give slight clues to the individual constituents or to any changes which are taking place; (2) methods which afford some chemical or biochemical information.

1. In greater detail the first class, *morphological methods*, may be divided into :—

(a) Staining by the use of dyes, “intersoluble” with fatty substances, applied to frozen sections. To this class belong the well-known Sudan III., and Scarlet Red dyes (Daddi, 1896; Michaelis, 1901, *vide* Mann (4)).

The oxazone dye, which is easily formed by intramolecular change from the oxazine dye, Nile Blue (*vide infra* (A) (b), is another example of this class.

It cannot be too strongly emphasised in this connection that these stainings depend entirely on the question of solubility: the dyes do not stain fatty substances in the solid crystalline condition. It is certainly possible to get different nuances of colour staining with them in a section, but it is impossible to draw any valid conclusion therefrom, as this difference depends on degrees of fluidity or size of the globules (*vide infra* (A) (b) and Fig. 6). A simple experiment will prove the former. A fatty body, solid at ordinary temperature—*e.g.*, stearic acid—placed in contact with one of these dyes remains unstained until the temperature is raised to the melting point. Similarly, frozen oleic acid does not stain with osmium tetroxide. Pure cholesterol and pure tributyrin do not stain, but when they are mixed blackening is rapid and intense (33).

(b) The second general method of procedure is to use some fat fixative, then to embed the tissue in paraffin. The fixation may have different degrees of action on the various fatty and lipoid compounds, and thus conclusions may be drawn as to the presence of certain substances

which are fixed by the reagent employed, so that they remain undissolved during the embedding procedure, and are made evident by subsequent appropriate staining. The fixative procedures that have been employed are—(1) chromation (*e.g.*, potassium dichromate), and then staining by Sudan III. Bell (6) has employed this method, and has drawn conclusions from the presence of a "Sudanophil" precipitate regarding the occurrence of "lipoid" (*cf.* also Ciaccio 7 and 8). (2) Osmication. Osmic acid, as is well known, renders certain substances insoluble in fat solvents, with a consequent resistance to the solvent action of the paraffin procedure.

This osmication can be direct (9) or followed by alcoholic treatment (10). The latter produces a further reduction where the sole application of osmic acid produces little effect.

(c) Observations can be made on the arrangement and form of the vacuolation, in stained paraffin sections. Stewart (11) has used this method in order to observe the effect on tissue elements from the deposition of cholesterol crystals. This procedure has the further merit of allowing observations on tissue changes—*e.g.*, the extent of leucocytic invasion, cell proliferation, or other changes accompanying fat deposition.

2. Procedures which allow of more or less certain deductions regarding the chemical nature of the fatty complexes. We may refer to them as *chemical and biochemical methods*. It is, however, to be borne in mind that the term chemical is a too narrow one. The physical conditions are of equal or perhaps of greater importance. The transport of fat from the intestinal lumen to epithelial cell is essentially one of relative solubility (partition) in the intestinal contents and in the epithelial protoplasm. This was overlooked in many of the old discussions on the necessity for soap formation as an antecedent to absorption (24). Further, no fatty globules in tissues are chemically pure—the admixture of minute amounts of lipoids with absorbed fat is of great importance. Again, the question



1



2



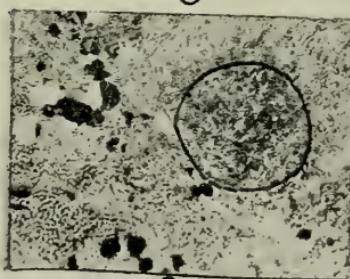
3



4



5



6



7



8

of the conditions which give rise to histological "masking" of tissue fat are probably physical rather than chemical in nature (12).

The methods here referred to may be divided into (A) a general group which affords some evidence of chemical properties, and (B) a group which, depending for its results on a progressive oxidation procedure, merits special attention.

(A) Taking the more general group first, let us see what chemical properties the fats and lipoids present which may form the basis of methodical investigation.

(a) "*Unsaturation.*"—The methods available are the osmic acid (Altmann, 1894 (9), or chromation, with subsequent haematoxylin staining; that is the production of a chrome haematoxylin lake fixated to the unsaturated linkage (Lorrain Smith and Mair, 1908) (18). As all fatty complexes in the tissue contain unsaturated members, the mere observation of unsaturation of itself is not of great interest, except in the case of the absorption of a saturated fat (*vide in frâ*). No valid deductions of the amount of unsaturation can be drawn from the degree of osmication, for osmic acid readily yields up its oxygen. This liability in fact limits to a certain extent its usefulness. Further, the physical conditions are of importance. For example, in Fig. 6, the region enclosed in a circle contains a deposit of lipoid globules, which contain many unsaturated groups in fluid crystalline condition, which are only slightly browned by osmic acid, while in the same neighbourhood can be seen fat cells, whose contents take on a deep black colour. The conditions are probably similar to those which produce difference of colour with intersoluble dyes.

(b) *Neutrality.*—The Nile Blue sulphate method of Lorrain Smith (5) affords a histological method, which, subject to a certain reservation, allows of observation on this point. The reservation is, that while the red colouring matter (an oxazone) belongs to the group of intersoluble dyes, therefore rapidly staining all liquid fatty

globules, whether neutral or with free acidic members, the formation of a coloured soap by the Nile Blue base (an oxazine) is a slightly slower process, therefore it is necessary to wait for this to take place before drawing conclusions, and at the same time to guard against the hydrolytic effect of CO_2 on the neutral fats (*cf.*, section 1, on neutrality).

(c) *Presence of Soaps.*—It has been claimed that the use of Fleming's solution will detect the presence of soaps, but I have never been able to convince myself of their occurrence in normal tissues nor of the reliability of the methods proposed.

The histochemical methods for detecting the presence of soaps require more extended examination before many statements in the literature can be received.

The cuticular zone of the epithelium is a place where, if anywhere under normal conditions, the presence of soaps might be expected, yet I have never been able to detect here any staining phenomena which might point to their presence. The fat here is "masked" in a most remarkable way.

(d) *Facility with which the globules undergo hydrolysis.*—The method (13) consists in staining with a basic aniline dye and exposing the sections placed in a layer of gum solution to the action of carbon dioxide of weak concentration. The rapidity with which a coloured soap forms indicates the facility with which neutral fat globules undergo hydrolysis. It is obvious that this method requires the strictest control by testing the sample of fat under similar conditions and by drawing conclusions from the examination of sections recently fixed in neutral formaldehyde, only where a marked difference is apparent.

(e) *Solubility in fat solvents.*—In chemical investigations the relative action of the various fat solvents has been widely utilised, and to some extent a similar procedure has been applied in histology. Noll (3), making use of this method, has come to conclusions on glyceride synthesis

similar to those which I have formed by the employment of the chrome haematoxylin process (*vide infrà*).

The staining procedure may be :—(1) Osmication, with subsequent application of the fat solvent; (2) or the staining with Sudan III. or similar dye, of sections which have previously been treated with a given solvent.

The process can be modified by using a fat solvent which has been previously saturated with a given fat or lipoid, but its application is limited in view of the phenomena of intersolubility exhibited by the bodies under discussion.

(f) *Polarisation phenomena*.—In the case of lipoidal mixtures which form anisotropic globules between certain ranges of temperature, the polarisation microscope can be used to determine two points—viz., if anisotropic globules are laid down in the cells, and, if present, whether they present the same “clearing point” as that of the mixture given in the food (14).

I may remark that I have seldom met with anisotropic intracellular globules in the alimentary mucosa, especially of Reptilia. Two conditions may hinder their detection: the melting point of these bodies may impede their absorption, and the minute quantities in which they seem to be present may be insufficient to give anisotropism. I have had more success with the method in the case of warm-blooded animals. The phenomena of anisotropism, of course, is not due solely to the presence of cholesterylesters (14).

(g) *Staining by acid dyes*—viz., the methods of Weigert or Altmann with acid fuchsin (15). The lipoids for which this method is of use are lecithin and sphingosin, which have basic groups. Altmann’s granules are considered by most recent workers to have lipoidal constituents of a phosphatide nature (16), (21).

(B) The methods which depend on the “*progressive*

oxidation'' of unsaturated linkages present very many points of interest, and have opened up many fresh paths for the elucidation of intracellular fat metabolism.

The process consists in the action of dichromate of potassium on fatty acids, fats, or lipoids, which have in their molecule one or more unsaturated linkage. At an intermediate stage the chromium compound is fixed to these links, and so serves to anchor the hæmatoxylin, so that the chrome-hæmatoxylin-fat or lipoid complex resists the bleaching action of borax ferro cyanide solution or of the Pal method. That the method stains only unsaturated groups cannot be too strongly emphasised in view of some erroneous statements in the literature. For example, Kawamura in his Monograph (17) has the following statements :—

“ Gegen die Smithsche Methode verhält sich das Olivenöl negativ . . . Die reine Stearinsäure färbt sich bereits nach zwei Tagen schwarz.”

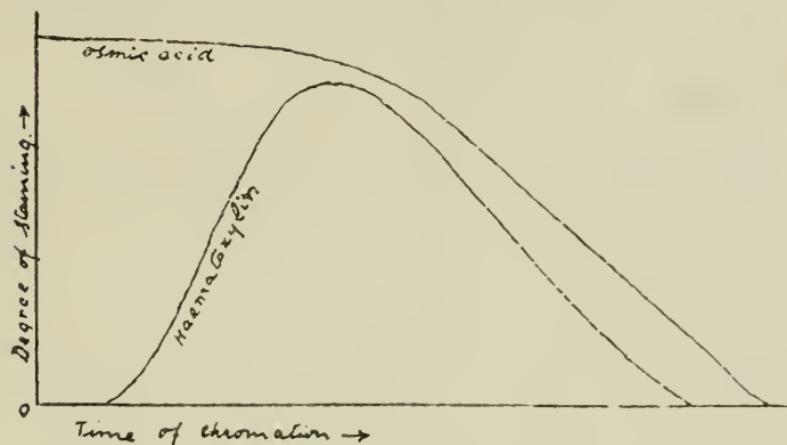
Stearic acid, being a saturated acid, never stains with this procedure, while olive oil stains at the same rate as oleic acid.

The details and theory of the method have been so fully described by Lorrain Smith and Mair (15), (18), (19) that it is unnecessary to discuss them in this place. It may be useful to emphasise how the method may be standardised and comparative results obtained (20). Frozen sections after formaldehyde fixation are placed in a large bulk of potassium dichromate solution of a given strength, and maintained at a suitable temperature.

Artificial sections—*i.c.*, the sample of fatty substances which has been fed—smeared on pieces of cigarette paper, are treated under exactly similar conditions. At 24 or 48 hour intervals, sections from both series are stained and subsequently bleached for fixed times, and the degree of

staining is observed. The stains employed subsequent to chromation may be—(a) haematoxylin, or (b) osmic acid.

The following diagram represents the course of the process:—



(a) It will be observed that, using haematoxylin, there are three stages: first, unstainable stage, when no chromium complex has yet been formed; second, a stage of gradually increasing depth of staining—this is the stage which I have found most useful; third, a stage of gradual decreasing depth of staining, followed by the final result, complete saturation (*e.g.*, oleic acid to dioxystearic acid); hence the disappearance of the chromium complex, with consequent inability of the fatty globules to stain.

(b) Where osmic acid is employed, the staining is obtained from the beginning, but gradually diminishes in intensity parallel to the disappearance of the double bonds.

The figures (1) (3) show two examples of comparative results which I have obtained, the comparison being in each case with the dépôt fat in pieces of adipose tissue in the same sections. Comparison can also be obtained within the boundaries of the same cell (*cf.* Figs. 7 and 8).

I now desire to recount the results which I have obtained by use of certain of the above methods. The animals used have been both warm and cold-blooded. There is, however, considerable difficulty in feeding warm-blooded animals on fatty substances, as it is generally impossible to give these alone, and the presence of other food complicates the results.

As the principal object was to obtain comparisons between the staining reactions of the fatty mixtures fed and those of the resulting intracellular globules, it was found that frogs were the most suitable for experiment. These animals can be used in the fasting condition. Further, by the use of liquid paraffin the alimentary tract can be emptied of its contents. It need hardly be mentioned that before valid conclusions can be drawn, the staining reactions in sections from fasting animals must be carefully investigated, and when specimens from animals in which absorption has taken place are examined, the extent and topography of the absorbed bodies must be ascertained by Sudan III. or Scarlet Red staining.

1. *Neutrality.*—In all cases (with the possible exception of the gastric mucosa) when free fatty acids or lipoids with acidic properties have been given, the resulting intracellular globules have shown a red stain with Nile Blue. In the case of fatty acids, as detailed below, the production of a triglyceride does not occur at once, yet the globules do not take a blue stain: there is no explanation of this anomaly.

2. *Fats or fatty acids of the saturated series* become capable of staining with osmic acid or with the chrome haematoxylin method after absorption (Fig. 12).

The staining is not as intense as in the case of unsaturated fats, yet it is quite distinct. It seems to be situated principally at the surface of the globules.

The explanation of this result may be—(1) that the absorbed substances are associated with unsaturated lipoids, present in the cell or derived with them from the intestinal contents, or (2) that the absorbed fats are themselves desaturated.

3. *Progressive oxidation methods* applied to samples fed show different rates of staining before and after absorption. Triolein is the only case where this difference is slight. The acceleration of staining after this fat has been absorbed is one to two days at room temperature with saturated dichromate.

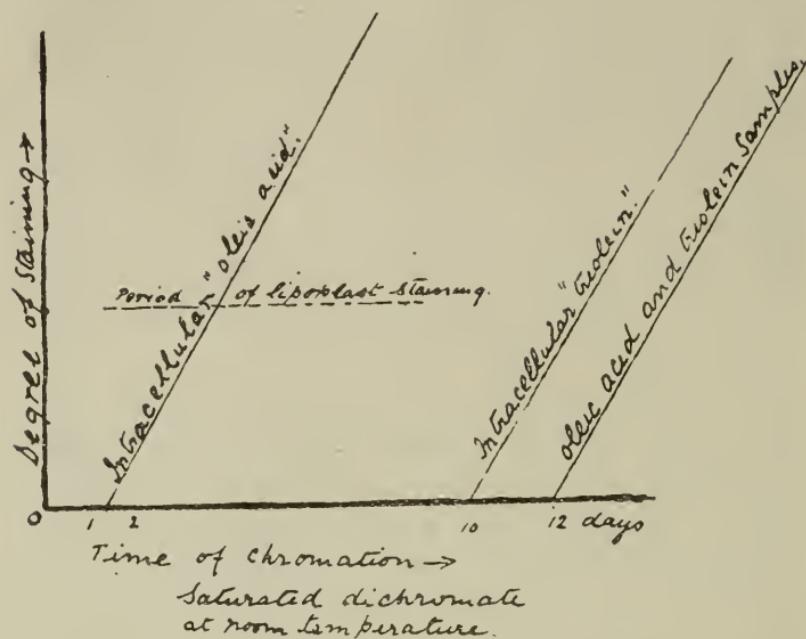
The most remarkable variation is in the case of the free fatty acids. Here the difference amounts to ten days. For example, absorbed oleic acid reaches the stainable stage when treated with saturated dichromate at room temperature in 24 to 48 hours, while free oleic acid and triolein treated outside the body cannot be stained before 12 days. They are stainable at the same rate.

Put in diagrammatic form, the phenomena can be exhibited as follows, p. 292. In other words, the absorbed acids are not immediately synthesised to the corresponding glycerides, but there is some intermediate stage in which the globules are easily oxidised. A mixture of free oleic acid and glycerol leads to the deposition of globules similar in behaviour to those appearing when triolein is fed.

Noll (3) came to the conclusion that such an intermediate stage existed. The methods that he used did not afford him an opportunity of observing the acceleration effect. The difference in staining rate can be observed to persist in fat that has passed into the lacteals.

A further detail can be made out. In the case of triolein or oleic acid fed with free glycerol, there is a stage obtainable when the intracellular globules are not yet stainable, but situated between them there are bodies stainable at a

very early stage. They are best obtained by the action of 1 per cent. dichromate at 37° C.

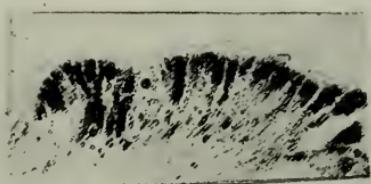


This is indicated in the diagram. The appearance of these bodies, which may be named "lipoplasts," can be seen in Figures 7 and 8 (32). Thus, a differentiation may be made within the limits of one cell as to its fatty constituents (21) (33).

In the case of oleic acid absorption, the stainable stage is reached so soon that it is impossible to observe whether such bodies are present separated from fatty globules.

It might be suggested that they are fused with the globules, and to this fusion is due the early staining, while, when synthesis is complete, these lipoplasts are segregated from the triglyceride, and the latter is now practically dépôt fat. It is interesting to note that the lipoids of the adrenal cortex are easily stained. The function put forward for this part of the adrenal is lipid elaboration (25). What body plays the chief rôle in these phenomena? Elsewhere I have suggested cholesterol (20), (31).

The evidence for this view is—firstly, mixtures contain-



ing cholesterol are easily stained; secondly, cholesterol is able to antagonise the irritating effects of free fatty acids (*cf.* Fig. 10). I have reported elsewhere this action of cholesterol (22) (*cf.* 23, 25).

As to the source of the cholesterol, it is known as a universal constituent of protoplasm, so that it may be present in the cell, or it may come from the bile. The latter source is supported by the observation that oleic acid in the intestinal contents is already easily stainable.

4. *Anisotropic lipoids* and lipoidal mixture are rarely detectable as such after absorption. I have already referred to this. It is further evidence of the modifying influence in the intestinal mucosa.

5. The morphological pictures are different in regard to the *type of reenovation*. This can be easily seen in paraffin sections (*vide* Figs. 9, 10, and 11).

This difference can also be seen in frozen sections treated by the haematoxylin method (*vide* Figs. 4 and 5). Other points can be made out from inspection of the intestines, where fat absorption is going on, and from paraffin sections. As already noted, free fatty acids have an irritating effect, and may even cause the death of an animal. The intestines show injection of the capillaries and epithelial desquamation (Fig. 10). This is an extreme stage. With the feeding of other mixtures varying degrees of vascular reaction can be seen, both as regards the extent of leucocytic emigration (Fig. 11) (varying chemotactic influence?) and as regards the degree of the vascular dilatation.

6. *Fat absorption in the stomach* presents several points of interest, to which I drew attention some years ago (20).

Subsequently other observers investigated this site of absorption (26), (27), (28).

The figures 1 and 2 show the histological picture that can be obtained. The special points which I have observed are—(a) the fat, both intra-epithelial and in the sub-mucosa, is as easily stainable by the chrome haematoxylin method as that in the adrenal cortex. It is, therefore, quickly oxidised.

(In the case of the fasting frog there is a continuous row of globules staining with fat stains below the free border of the epithelial cells on the surface. These may modify the reactions of absorbed fat, but in the case of warm-blooded animals I have not been able to observe this appearance.)

This facility of staining cannot be due to cholesterol from the bile, as these phenomena can best be observed in the region of the cardia. It may be due to the absorption by the stomach of fats which are easily oxidised by the method or to a mixture with cholesterol which has been supplied by the cells. (b) The staining with basic aniline dyes is more rapid than the staining of fat in the intestinal mucosa from the same animal which has been fed on a mixture of fat, such as occurs in milk. In other words, it is more easily hydrolysed under like conditions. Nile Blue stains the globules a neutral tint.

(c) In the same animal the amount of fat in the gastric mucosa is in inverse proportion to that in the intestinal mucosa. Obviously, the stages of absorption in the stomach precede these in the intestines.

It is hard to conceive that soap formation can take place. I am inclined to the view that the epithelial protoplasm has a solvent affinity for at least certain fats or fatty acids. This is supported by cases where I have found some evidence of fat absorption in the frog's oesophagus. It is also in harmony with the slight absorption which is stated to take place in the intestines after ligation of the bile and pancreatic ducts.

7. *The influence of the nucleus of the cell on fat deposition* (29). It is difficult to decide if such an influence exists. I have noticed in the case of lower members of the fatty series that the side of the cell next the intestinal lumen tends to be free from globules, which increase in number in the nuclear region. In Fig. 12 it can be seen as a fairly broad zone, free from fat.

8. *The importance of triolein or oleic acid.* I have been often struck with the difficulty of obtaining absorption with

fat mixtures which do not contain triolein or oleic acid. The glycerides of the lower saturated fats, though liquid at ordinary temperature, are not absorbed easily.

I cannot say whether saturation of the carbon chains has anything to do with this. It may be that triolein and oleic acid are especially soluble in protoplasm or that fatty acids of the unsaturated series are easiest of absorption.

9. I have endeavoured to find if the bodies which I have named lipoplasts have a relation to *Altman's granules*, but hitherto I have failed. In fact, so far as my observations go, it would seem that the Altmann bodies disappear where fat absorption is taking place.

The main conclusion which I would draw is that the *alimentary epithelium is the primary site of fat specialisation*. Although fat foreign to the animal's body can be laid down in fat dépôts, yet the vital activities of the cell endeavour either to absorb fatty mixtures which resemble the fat peculiar to the species or else to produce transformations which lead to this specialisation (30).

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EXPLANATION OF PLATES.

1. Stomach, kitten : frozen section. Saturated potassium dichromate at room temperature for one day : $\times 80$. Dépôt fat in mesentery unstained.
2. Stomach, cat : frozen section. Saturated dichromate at room temperature for one day : $\times 60$. From a drawing. Fat in epithelium and in submucosa stained. Dépôt fat unstained.
3. Adrenal, cat : frozen section. Saturated dichromate at room temperature for one day : $\times 80$. "Fat" in cortex stained. Dépôt fat unstained.
4. Intestine, frog : oleic acid and cholesterol feeding. Saturated dichromate at room temperature for three days : $\times 330$.
5. Intestine, frog : oleic acid feeding : frozen section. Saturated dichromate at room temperature for three days : $\times 330$.
6. Wall of gall-bladder (cholelithiasis). Formol fixation. Frozen section. Osmic acid. $\times 300$. The cells within the circle are loaded with anisotropic lipoids but stain imperfectly. The larger blackened droplets are isotropic.
7. Intestine, frog : triolein feeding : frozen section. One per cent. dichromate at 37 C. for two days. $\times 450$. From a drawing.

8. Intestine, frog : triolein feeding : an epithelial cell. $\times 450$. One per cent dichromate at 37°C . for three days.
9. Intestine, frog : triolein feeding : paraffin section : $\times 335$. Haematoxylin and eosin. Shows type of vacuolation.
10. Intestine, frog : oleic acid feeding : paraffin section : $\times 335$. Haematoxylin and eosin. Shows desquamation of epithelium.
11. Intestine, frog : oleic acid and cholesterol feeding : paraffin section : $\times 450$. Haematoxylin and eosin. Shows type of vacuolation and leucocytic infiltration.
12. Intestine, frog : Tributyrin feeding. Frozen section : $\times 80$. Saturated dichromate at room temperature for four days.

ART. XIV.—*The Frequency of Thyroid Insufficiency in General Practice.* By REGINALD JOHNSON, M.D., B.A.O., B.Ch. (Univ. Dubl.); Capt. R.A.M.C.; late lecturer on Midwifery and Gynaecology to Federated Malay States Medical School, Singapore.

FOR some nine months before I took a Commission in the R.A.M.C. I practised near Birmingham amongst working men and their families. Both men and women worked extremely hard, the women in addition to long hours spent in front of the furnace had the heavy strain of frequent pregnancies; they seemed to be continually aborting or bringing forth full time children. In many cases in less than seven days after confinement one saw them again wielding the hammer and knocking the red-hot iron into the requisite shape, whilst the latest arrival lay in a convenient niche near the furnace awaiting its next feed.

Many munition and war-workers were numbered amongst my patients. Without exception these people were too busy or too much disinclined to attend to matters of general hygiene. Constipation was their greatest trouble, and if evacuation of the bowels occurred twice a week they were satisfied. Hard work, constipation, and in the case of the women, the extra strain of frequent pregnancies kept the thyroid gland working at very high pressure and under adverse conditions. By a thyroid in-

sufficient I mean an individual whose state of health is improved by the administration of thyroid gland.

I found the thyroid insufficient common amongst my patients, and once recognised and properly treated there is not a more grateful person in the world.

I can hardly venture to give an account of thyroid insufficiency to equal that given by Dr. Hertoghe, of Antwerp in the January number of the Practitioner for 1915. I would, however, like to interest my fellow practitioners in the effects of thyroid medication on some few of the many cases of thyroid insufficiency that I was able to treat with success, after reading Dr. Hertoghe's excellent paper.

My cases were both male and female, the females in the majority. In one week I used to see on an average one hundred different patients of all kinds. My average number of thyroid insufficient per week was about twenty; the greater number were slight cases. The figures will serve to shew the numbers of these unfortunates amongst the working classes.

The degree of thyroid insufficiency varies tremendously, a few typical cases given in some detail may be of interest. I must apologise for the fact that the description of the cases is not complete, but owing to my absence in France I have been unable to follow all my cases. My first three cases are children, two of them severe cases and the third a slight one.

CASE I. was just two years old when I came across her. I was at once struck by the peculiar appearance of the child. I could obtain no family history of subthyroidism. The mother, who was pregnant for the third time in three years, showed no traces of insufficiency. Whilst carrying Case I. she enjoyed good health.

The child's general appearance was one of stupidity; her head was large, the anterior fontanelle widely open, the forehead slightly bulging and the occiput prominent, the hair of the head was coarse and taily, there was a dry brownish scab-like substance on most of the scalp.

Her face showed a pair of wide apart eyes with a slight internal squint of the left eye. The nose was minus a bridge and the anterior nares gaped open. Her cheeks were red and the skin was somewhat rough. The mouth was always open, and the tongue, which was not furrowed, often protruded. Two partially erupted teeth were present, dribbling was frequent.

A body well covered with fat showed supraclavicular pads of fat and an extremely prominent abdomen with a large umbilical hernia.

The hands and feet were small, with stumpy fingers and toes; the nails were slightly brittle, there was a slight tibial curve in both legs.

On questioning the mother as to the child's habits, she said that the child showed no inclination to walk or even stand, and always sat tailor-fashion with her legs crossed under her. She complained of how cold the child's hands and feet felt, but was very pleased because the baby slept nearly all the time!

The bowels moved without any warning from the child, and micturition was spontaneous. The emotions were easily roused, and anger was expressed by a throaty "growl." Her affection for her parents was as marked as her jealousy of her baby sister of nine months.

At the time of examination Case I.'s height was 27 inches, and her weight was 21 lbs.; the normal height and weight of a female child of two being 31 inches and $25\frac{1}{4}$ lbs. respectively. $\frac{1}{2}$ grain thyroid gland (B. W.) and hyd. cum cretâ $\frac{1}{2}$ grain. were ordered in powder form three times a day.

In ten weeks the child's weight had gained a pound, she had grown an inch, and the squint in the eye had disappeared. A few words were said—*e.g.*, "Dada" and "Ta," in lieu of "Thank you." She could walk by holding on to objects: the walk was peculiar, as she never bent her knees, but walked from the hips; there was no ankylosis at the knee-joint.

The bowels were regular—once or twice a day—and

sometimes the mother received warning from the child of an impending motion. Intelligence was beginning to peep out from the wide-apart eyes. Four more teeth had erupted, and the mouth was as often shut as open. Protrusion of the tongue was still frequent, and the dribbling was almost as bad as at first.

The anterior fontanelle had closed in considerably; the body had lost the greater part of the infiltration, and the umbilical hernia had almost disappeared.

During these ten weeks the child had three separate and severe attacks of urticaria, and at no time could the origin of the attack be traced to injurious food. The attacks lasted about twenty-four hours.

I now increased the dose to 1 gr. three times a day and prescribed calcium lactate. A severe attack of urticaria followed the increase of the dose, but was over in twenty-four hours. The child improved on the larger dose, and in about ten days I increased the dose to 2 grs. three times a day. Another attack of urticaria followed the increased dose, but disappeared as before, and in two weeks I increased the dose to 3 grains three times a day with the calcium lactate. Another attack of urticaria followed, and disappeared as usual. The child stood the increased dose very well, and began to say short sentences—*e.g.*, “I see you,” or “Want to go out.”

CASE II.—My second child case was aged $7\frac{1}{2}$ years, and was, in many of her physical characteristics, not unlike Case I. She had been looked on as a Mongol, and, therefore, incapable of any great improvement.

There was the same dull, apathetic look, and wide-apart eyes, with the prominent squint in the left eye. There was the open mouth and often protruding tongue. Half-a-dozen decayed teeth were present, and dribbling was frequent. The bridgeless nose with the widely gaping anterior nares and the reddish cheeks with rough, furfuraceous skin were present, as in Case I.

The head of Case II., however, differed materially from



CASE "C."—*Taken before Treatment.*

that of Case I. It was very small and square shaped—a Mongol characteristic—forehead and occiput were flat, the fontanelles were quite closed. The hair was abundant, and healthy; the child's neck was very short and thick, a feature which Case I. also presented. I could not feel the thyroid gland in either case.

The body resembled Case I. : the supra-clavicular pads of fat, the prominent abdomen, and the large umbilical hernia all being present.

The child could walk a little, and said a few simple words in a slow, slurring fashion. A grunt was her favourite mode of expression; she seemed affectionate, and slow to anger. Her weight was 42 lbs. and her height was 3 feet 5 $\frac{1}{4}$ inches, instead of a normal weight of 47 lbs. and a normal height of 3 feet 8 inches.

I gave $\frac{1}{2}$ gr. thyroid and $\frac{1}{2}$ gr. hyd. cum. cretâ three times a day.

In Case II. changes were more rapid, especially the mental changes. In one week the child had quite an intelligent look, and several words had been added to her vocabulary. She was much more active, and her appetite was keener.

The bowels moved twice a day, a large amount of faeces being passed. In a month I stopped the hyd. c. cretâ, and increased the dose of thyroid to $\frac{3}{4}$ gr. t.i.d. In ten weeks the child had diminished in weight to 41 lbs. and increased in height to 3 feet 6 $\frac{1}{2}$ inches. She could talk in short sentences and answer questions, and her activity and curiosity were tremendous. The bowels were regular.

It is interesting to note that the spec. gravity of her urine was 1039, no abnormal constituent being present. The child was intelligent enough to be sent messages. Dribbling was still present, six more teeth had erupted, and these presented a peculiar notched appearance. The squint in the left eye had improved; at this time her hair was coming out, and fresh hair could be seen growing. The child was extremely ticklesome, a fact I have noticed in several other child insufficients.

CASE III.—My third child-case is a type often met with : the "thin, listless, small glands in neck, nothing-does-any-good" child.

A tired, sleepy look in the eyes, a rough, dry, jaundiced-looking skin, and a body thin almost to emaciation characterised this case.

The child had no appetite, and never felt warm ; she was unable to sleep, yet was always tired. Her temperature in the mouth was 97° F., and a thin, weak pulse was beating 76 to the minute : the thyroid gland was not palpable.

Her age was 9 years, her weight 3 stone 3 lbs., and her height 3 feet 11½ inches.

Female child, age 9—Normal height, 4 feet 3 inches ; normal weight, 3 stone 13½ lbs.

Nearly all the teeth present were decayed, and she often suffered from neuralgia. Her photograph shows her general appearance better than any description I can give.

Tonsils and adenoids, though once "removed," were present in an enlarged state. There were some small, hard glands felt along the anterior border of the sternomastoid. The heart and lungs were sound. Constipation was severe.

Glasses were worn to remedy several frontal headaches, but failed in their purpose. The child, according to the mother was "tired of taking medicines."

I gave $\frac{1}{2}$ gr. thyroid gland B.W. three times a day and a tablespoonful of liquid paraffin morning and evening.

After a week's treatment the child had improved wonderfully. She slept well at night, her appetite was quite keen, and she was much more active in her movements. She was intelligent, and took quite an interest in my examination, whereas before I found it necessary to ask the same questions two or three times before she understood, and then the mind seemed slow to work, and the slowly spoken answer had to be waited for. Her bowels were regular, and I stopped the oil.

After three months' treatment the child had grown



CASE "C."—*After Six Months' Treatment.*

1 inch and gained 2 lbs. in weight. The skin was smoother, and the child had quite a good colour. The eyes were bright and intelligent looking, and all my questions were answered correctly, and at once.

The same treatment was continued, and in another three months the child was more intelligent and active than the average child of the same age. Her photograph shows the improvement.

CASE IV.—A typical male adult insufficient, aged 54, is my next case.

A man came into my surgery looking the picture of misery, and complaining of severe pains in the head, and a constant tired, chilly feeling. He said he was always tired, and sank into a chair, as if his legs could no longer support him. Constipation was another of his troubles, and a week often passed without an evacuation of the bowels. He slept badly and ate nothing.

On examination by inspection there was a peculiar dry look about the hair of his head and grey patches showed here and there amongst the general brown. The face was sallow and infiltrated, and a dark puffiness under the eyes added to his woebegone appearance. The teeth were in an awful state: dental caries and pyorrhœa both being present in an advanced degree. There was a thick, green pulp on the gums round the front teeth of his lower jaw; his tongue was coated with a dry, brown fur, and his breath had an abominable smell; the temperature was normal, and a hard pulse beating 76 times a minute was present. The heart and lungs were sound.

While questioning the patient I noticed that he was slightly deaf, and he complained of a buzzing noise in both ears. It seemed to take some time for his mind to get to work, and his speech was slow and hesitating.

I gave thyroid gland $\frac{1}{2}$ gr. t.i.d. and liquid paraffin half an ounce t.i.d. After a week the man seemed more exhansted, and I diminished the dose to $\frac{1}{4}$ gr. t.i.d. and continued the paraffin.

In another week he walked briskly into my surgery, and

said in a loud, cheerful voice that he thought he would start work again. "Them tablets have worked wonders," was his expression. His appearance had greatly improved; the headache had gone, and he could sleep well; the buzzing in his ears had almost gone. His weight when I first saw him was 10 stone 2 lbs., and after thirty days' treatment he lost 16 lbs. The puffiness under his eyes had almost gone, and the face had lost its heavy look. The lack lustre look of the eyes was replaced by a bright, intelligent appearance. He seemed full of vigour and good spirits. The deafness had improved, and the mind was quicker to grasp the meaning of things. He declared himself cured, and wished to stop the thyroid. I persuaded him to take $\frac{1}{4}$ grain every two days or so. Six months after the initial dose he was still feeling no need of more than this occasional dose. His bowels were regular, and he was easily able to tackle his work. Local treatment and the thyroid administration had improved the state of the patient's mouth, but pyorrhœa was still present when I last saw him.

CASE V. is a typical adult female insufficient.

A woman, aged 36, came to me complaining of neuralgic pains in the head, slight deafness in both ears, and a buzzing noise in the left ear. She said she felt the head pains especially in the morning, and her body ached so much that she might have been sleeping on the floor all night. A constant, tired feeling was present, and her body felt alternately hot and then cold. At night her husband often remonstrated with her about the amount of clothes she piled on the bed in her endeavour to get warm.

This tired feeling, together with a constant desire to sleep, which was never satisfied, she ascribed to the fact that she had severe menorrhagia every three weeks. She suffered from constipation for several days, succeeded by several days of diarrhoea. She had been pregnant six times in ten years—three full-time children and three miscarriages. Her hair was thin, dry and scanty, and she complained that it "came out in handfuls."

The outer third of her eyebrows was missing, her face had a dull, infiltrated look, and there was a distinct puffiness under both eyes. The teeth were in a sad state, dental caries and pyorrhœa alveolaris both being present. The same peculiar greenish pulp surrounded the front teeth of the lower jaw, as in Case IV. Her weight was 8 stone; her temperature 98° F., and her pulse rate 67. The pulse was weak and thready.

For two weeks she took thyroid gland grs. 2 and calcium lactate grs. 5, three times a day, keeping the bowels acting by an early morning dose of salts. She improved greatly, and told me that after a week's treatment she had done a good day's washing, a thing she had not done for months. However, she now complained of giddiness and a buzzing in the right ear, and I diminished the dose to 1 grain t.i.d. with the 5 grains of calcium lactate. In six weeks she appeared to be quite normal. She lost 5 lbs. and subsequently gained six, so that her weight was 8 stone 2 lbs., but the dull, infiltrated look had vanished and the eyes were bright. Sleep was sound and refreshing; she could hear perfectly, and the buzzing in her ear had gone.

Menstruation now occurred every 28 days, and the loss was not nearly so great.

As in Case IV., the ear trouble was the last symptom to disappear.

She now took $\frac{1}{2}$ a grain of thyroid and 10 grains calcium lactate four or five times a week, and six months after the initial dose she said it was "a pleasure to be alive."

The pyorrhœa had improved considerably under the same treatment as I used for Case IV.

CASE VI.—This was a case of a woman, aged 39, who appeared to be suffering from Bright's Disease.

She came to me complaining of a swollen feeling in the abdomen, severe frontal headaches, and a constant desire to vomit. She passed very little urine in the 24 hours; examination showed the specific gravity to be 1022, no sugar or albumen being present. Constipation

was severe, three or often five days passing without a motion. The temperature was normal, the pulse rate 70; no arterial degeneration was present. The woman's face was infiltrated, and puffiness under the eyes, with conjunctival oedema, was noticeable. The skin was dry and sallow, and irregular patches of yellowish pigment showed here and there. Her hair was rapidly turning grey, and coming out in quantities. The heart and lungs were sound. The body seemed generally swollen; the abdominal wall was oedematous; the legs were greatly swollen. The oedema pitted on pressure. The skin of the whole body was dry and furfuraceous; the teeth were all decayed. Thyroid deficiency did not at first enter my mind, and I put the patient to bed, ordering a very light diet with a diuretic mixture and an occasional brisk purgative. The condition did not improve, and the patient was so cold that several hot-water bottles and blankets were needed to keep any warmth in her body, although the weather was extremely warm at the time. It was this extreme chilliness that first suggested thyroid insufficiency to me. The decayed teeth, the constipation, the frontal headache, in addition to the awful feeling of depression, and the constant tired feeling which she now complained of, all confirmed the deficiency. I ordered 1 grain of thyroid gland t.i.d. and kept her bowels free by means of liquid paraffin. The improvement was immediate. After three months' treatment she had lost 19 lbs., and her whole appearance had changed. The hair was still falling out, but new hair was growing. The yellow, sallow look had gone from her face and her movements were brisk and vigorous. There was still a little puffiness under the eyes, but the face had lost all appearances of infiltration. There was no oedema present in the body; the bowels were moved more easily, and the feeling of depression had vanished; in fact, she declared herself "almost" quite well, her natural Scotch caution not allowing her to say she was cured. Five months after the initial dose she was taking a $\frac{1}{4}$ gr. t.i.d. and still

taking the liquid paraffin. She was enjoying perfect health.

The cases I have described are types of their kind. Cases I. and II. present to my mind two distinct kinds of cretinism. They are now, in my absence in the R.A.M.C., under the care of Dr. Ewan Waller, of Birmingham, and I hope later on to publish complete results of treatment.

Case III. is a representative of a class of her own. So far, I have had twenty of these cases, and they all presented the same thin, listless appearance. Small doses of thyroid are indicated for these children, and my usual routine is $\frac{1}{10}$ of a grain t.i.d. : in no case have I given more than $\frac{1}{8}$ grain t.i.d. to begin with. The increase in weight is sometimes quite startling : one little thing of two gained 4 lbs. in twelve days. It is essential in these cases, as in all insufficients, to keep the bowels moving freely, and I have found liquid paraffin invaluable.

Case V. is a type of the most common degree of insufficiency met with. In a working-class practice, where the wife has the whole house to look after and her husband and several children to feed, and when she very often helps to swell the weekly wage by doing a little outside work, it is not difficult to understand the reasons for this. After the age of thirty, when married life has often already lasted ten or twelve years, and the woman of the house has been pregnant six or seven times, she begins to show the first symptoms of slight thyroid insufficiency. The house is not kept clean, the children and their father suffer, and the unfortunate insuffient is insulted by being called lazy ; she struggles on, and finally she comes to the doctor for a tonic and "something for the headache." Without a knowledge of the symptoms of slight thyroid insufficiency the tonic is given and the woman told to keep her bowels more regular, as she invariably confesses to severe constipation. The tonic is only a temporary spur to a tired horse, and the load still feels far too heavy to drag along. The woman gets tired of taking the tonic mixture and goes from bad to worse. With the knowledge

of all that the thyroid gland is responsible for these women can be given new life. The frontal headache and the tired, worried, depressed feelings all vanish. Her whole outlook brightens, and the family rejoice correspondingly.

At the commencement of treatment regular small doses of thyroid should be administered and regular evacuation of the bowels ensured till the symptoms are relieved. Thereafter the dose per day may be diminished, attention to the bowels being continued. My experience leads me to believe that many of these minor degrees of thyroid insufficiency are of a temporary nature, and that after balance amongst the ductless glands has been restored continued administration of thyroid extract is often unnecessary.

Case VI. is representative of a type of thyroid insufficiency in which at first sight many of the symptoms, particularly the general appearance, are suggestive of Bright's Disease. For example: in the case cited the presence of oedema which pitted on pressure and the subconjunctival oedema were confusing symptoms. I have not previously seen thyroid gland mentioned as an aphrodisiac, but in a few of my patients, both male and female, it undoubtedly acted as such. In all cases the thyroid gland is specific in its action. In one case a woman who had not spoken above a whisper for two years, and who at times was unable to make herself heard at all, presented only a few signs of insufficiency, but thyroid $\frac{1}{4}$ grain t.i.d. gave her back her voice in about three months, and $\frac{1}{4}$ grain daily keeps her all right. If a patient is on one dose a day it should be taken just before going to bed.

The symptoms that strike one most after a few cases have been seen are the extreme depression, the chronic headache, and the constant tired, chilly feeling; "My hands and feet are always cold" is a sentence these cases are very fond of. "I feel so tired, I don't know where to put myself, and the mere thought of work is enough to

make me want to cry," is how one woman expressed herself. Sleep is a luxury to some cases and a nuisance to others. The administration of the gland generally procures sound, refreshing sleep for both types.

In treating a case it is well to get the eyes tested, as the headaches complained of are often lessened by the use of correct glasses. One curious fact I have noticed is that glasses worn before the taking of the thyroid gland often have to be altered after a month or more of regular doses. Absorption of infiltration somewhere is, I suppose, the reason necessitating the change. The dosage is a great trouble at first, and each case is a law to itself.

My routine now is $\frac{1}{2}$ gr. t.i.d. with liquid paraffin; half-an-ounce morning and evening after meals or some suitable laxative in place of the paraffin. Experience is the only teacher in the administration of the correct dose. Small doses at first and then an increase: if the increase is not enjoyed return to the smaller dose. The weighing machine comes into its own in these cases, and the initial weight followed by the weekly weight must be carefully kept. One of my cases, a man, aged 29, lost 3 lbs. in two days on $\frac{1}{8}$ grain t.i.d.

A good working knowledge of the symptoms of slight thyroid insufficiency is essential, and it is certain that no drug gives more pleasure to both the patient and his medical adviser than thyroid gland given in the right dose to the right person.

THE RESULTS OF ANTERIOR ABDOMINAL HYSTEROTOMY.

HIRST (*Am. Jour. Obs.*, LXXV., 684) showed the ill results following an anterior hysterotomy by Deaver, who recommends this major operation instead of curettage. In a most spirited discussion, in which all present condemned Deaver's method, the latter said he intended to pursue his (we think) evil course. Baldy remarked that he had never seen a general surgeon first class in pelvic surgery, and certainly Deaver's well deserved record as a general surgeon has been much lowered by his dabblings in the pelvis.

B.S.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Hygiene and Public Health. By LOUIS C. PARKES, M.D., D.P.H. Univ. of Lond. ; Lt.-Col. R.A.M.C. (Temp.) ; Consulting Sanitary Adviser to H. M. Office of Works, &c. ; and HENRY R. KENWOOD, M.B., F.R.S. Edin., D.P.H. Lond., Lt.-Col. R.A.M.C. (Temp.) ; Chadwick Professor of Hygiene in the University of London, &c. Sixth Edition, with Illustrations. London : H. K. Lewis & Co., Ltd. 1917. Demy 8vo. Pp. xii. + 787.

THE fifth edition of Parke's and Kenwood's "Hygiene and Public Health" was published in 1913, and was reviewed in the number of this Journal for January, 1914 (Vol. 137, No. 505, third series, p. 46). In that review we criticised the attitude of the authors in regard to the question of the notification of measles and whooping-cough. They admitted the seriousness of these acute infections, but wrote in rather a luke-warm manner as to the application of notification as a preventive measure in regard to them. We are glad to find that in the present edition they tacitly imply their approval of "The Public Health [Measles and 'German Measles'] Regulations, 1915," whereby these diseases were made compulsorily notifiable in England and Wales. To our mind, very unfortunately the deadly disease, whooping-cough, was not included in the said Regulations, nor were the Regulations extended to Ireland and Scotland.

In Ireland, it is true, a comparatively low mortality from measles characterised the year 1916, the registered deaths numbering 452, compared with 920 in 1913, 1,003 in 1914, and 595 in 1915, and an average of 689 for the

ten years 1906-1915. But, of the 452 deaths, 208, or 46 per cent., were registered in Belfast Union, and 100, or 22 per cent., in the two Dublin Unions. Surely, early notification would have been of use as a preventive measure in the two chief cities of Ireland.

But the case of whooping-cough is even more critical. Deaths in Ireland from this disease, which rose from 618 in 1913 to 751 in 1914, and to 823 in 1915, rose still further to 887 in 1916. And this latter large number included 843 deaths of children under 5 years of age. Here again every effort should be strained to save child-life from the ravages wrought by a non-notifiable acute infection.

In this connection we note with satisfaction that a chapter (X) on Maternity and Child-Welfare has been introduced into the sixth edition of the work before us. The closing paragraph of the last section of that chapter on "Infant Consultation Centre and Clinic" may be quoted in connection with the facts given above. It runs as follows:—

"By such a system as this many of the disabling illnesses of early childhood may be prevented, and the child enabled to begin its school life with the best prospects of deriving benefits from school education. The prevention of disease in infancy and early childhood does not in practice mean the survival of the unfit, but rather the survival of children under conditions of healthy normal development, who are best fitted to form capable future citizens, to support the foundations of the national life." (Page 600).

In addition to the new chapter from which the above quotation is taken, a note on "Marine Hygiene" has been inserted as bearing on merchant ships. It is apparently an extract from a report on Marine Hygiene, by William Hanna, M.A., M.D., D.P.H. It will be found at page 773. In this edition also the subjects of Personal Hygiene, Camp Sanitation, and Communicable Diseases have been amplified.

In Chapter VI. on "Climate and Meteorology," no allusion is made to the C.G.S. (Centimetre—Gramme—Second) system of units for meteorological measurements, which has been in use by the Meteorological Office, London, since May 1, 1914. The barometer readings are now given in millibars, instead of inches, and rainfall is measured in millimetres—a millimetre being one-tenth of the C.G.S. unit. The practical unit of wind velocity is the metre per second—that is, 100 times the C.G.S. unit of velocity. It is necessary to explain that a "millibar" is the thousandth part of a bar or "barye"—a megadyne—that is, 1,000,000 dynes—per square centimetre. A "dyne," or the unit of force in the C.G.S. system, is the force which produces an acceleration of 1 centimetre per second per second (the unit of acceleration) in a mass of one gramme.

The subject of Climate and Weather Observation is deserving of fuller treatment than it at present meets with in what in most respects is an admirable treatise on Hygiene and Public Health. As such we commend this Sixth Edition to our readers.

J.W.M.

The Involuntary Nervous System. By WALTER HOLBROOK GASKELL, M.A., M.D., F.R.S. London : Longmans, Green & Co. 1916. Royal 8vo. Pp. ix + 178.

THIS is the first of a series of monographs on physiology brought out under the general editorship of Professor E. H. Starling. It is intended that each monograph shall contain an account of some particular branch of physiology, written by one who has contributed in greater or less degree to the attainment of our present knowledge. The aim is not to be an exhaustive account of previous writings on any subject, but rather to be content with "an appreciation of what is worth retaining in past work," while laying special stress on indications

“suggestive of the paths along which future research may be fruitful of results.”

The late Dr. Gaskell, who died soon after he had completed the manuscript of the present volume, was a leader in physiology whose life work on the subject of this monograph was fruitful in inspiring the labours of many others, and as a whole constitutes an imperishable monument to his memory.

At this work he had been actively engaged from the year 1874 till his death—a span of nearly forty years—and he had the gratification of seeing the most intricate maze in the whole domain of physiology—namely, the functions of the autonomic, or, as he preferred to call it, the involuntary nervous system—gradually penetrated to its deepest recesses and, by patient investigation, carefully mapped out for all future time. In this task he was ably assisted by Langley, Bradford, and many others.

The work consists of twelve chapters, and constitutes a mine of information of the most inspiring kind, naturally bearing the impress of the master’s own views, which in some particulars are not shared by all, but which are temperately set forth, and in all cases supported by evidence which, if not conclusive, is everywhere suggestive and worthy of attentive consideration.

The outstanding conclusion of the whole monograph is that the involuntary nervous system is never a complete or independent system. It represents only the motor or inhibitory side, as the case may be, of such a system, never the sensory or afferent side, the latter being supplied through the medium of the voluntary nervous system.

The neurons which constitute this involuntary nervous system have wandered out in the course of development and evolution from the central masses of nerve cells and have taken up their stations at various

places—some in the lateral chain of the sympathetic cord, some in collateral ganglia such as the semilunar, superior mesenteric, and inferior mesenteric; many as far peripheralwards as to be actually embedded in the substance of the organs to whose functions they minister. Instances of the last-named are found in the heart, the coats of the intestine, and the walls of the bladder, &c.

These neurons which correspond to the anterior cornual cells of the voluntary nervous system fall into two great groups—(a) the sympathetic system proper, (b) the enteral system. The former supplies the following groups of involuntary muscles—(1) the vascular group, (2) the dermal musculature underlying the skin, including the arrectores pilæ muscles; (3) a group of muscles around structures derived from the segmental duct (uro-genital dermal system), such as the uterus, vagina, bladder, kidney; (4) the sphincters of the alimentary tube—ileo-colic, internal anal, also the internal vesical sphincter and the urethra.

The fibres which connect these neurons up to the central nervous system are the fine medullated axons of nerve cells situated in the lateral horn of the spinal cord, and their outflow is confined to the white rami communicantes of the thoracico-lumbar region. A distinctive feature of this group of involuntary muscles is that they all respond to the action of adrenalin, but are paralysed by ergotoxin.

The latter or enteral group of muscles is found underlying the surface of the gut—the endodermal musculature. The involuntary neurons of this system are connected up to the bulbar and sacral regions of the central nervous axis. The muscles of this system do not respond to adrenalin, but are excited by acetyl-choline, a substance isolated from ergot by Dale.

The nerve cells of the two systems are not all motor. Both “sympathetic” and “ental” nervous systems include inhibitory as well as motor nerve cells.

A considerable amount of space is, in fact, given to a

discussion of the *rôle* played by inhibitory nerves and also to the cognate question of vaso-dilation. In most cases the latter can be explained by the indirect action of metabolites produced by the activity of the organs concerned, such as glands and muscles. This explanation does not, however, cover all cases, and Gaskell considered it safest "to hold that vascular dilation of an organ can take place in two ways, either by alterations in the chemical constitution of the fluids bathing the muscles of the small arteries or by the stimulation of nerve fibres which relax those muscles."

Another interesting subject which receives very full consideration is the innate nature of the rhythmic and peristaltic movements of involuntary muscle. The ground covered there is wide, some of the special cases treated being the movements of the heart, the contractions of the lymph hearts of Amphibia, the rhythmic movements of blood vessels, and the movements of the alimentary canal. The beat of the heart and the movements of the blood vessels are unhesitatingly assigned to an inherent tendency of the muscle in each case to rhythmic action; the *rôle* of the intrinsic nervous mechanism being to assist in maintaining tone, or, in other words, to keep the muscular tissue in a due condition of unstable equilibrium necessary for spontaneous contractions. It will be recognised, however, that this statement, although bringing the matter up to a certain point, is not a complete explanation of the cause of rhythmic muscular activity. Gaskell had not himself investigated the effects of "ions" of different metallic salts on the contraction of muscle, and no reference is made to it in his work.

On the other hand, the rhythm of the lymph hearts is undoubtedly neurogenic. But this is a special case, the muscle is striated, the "all or none" principle of the contraction of cardiac muscle does not apply, and stimulation of the motor nerves of the lymph heart causes tetanus as in ordinary skeletal muscle.

The peristaltic movements of the intestine, or so called "myenteric reflex," as well as other movements seen in the alimentary tube, are very fully discussed, and cogent reasons are adduced for not accepting as finally proven that a true reflex takes place in this special instance of the work of the enteric nervous system. All other similar cases where peripheral reflexes have at one time been claimed to exist have received, on fuller investigation, more satisfactory explanations which tend to throw doubt on the possibility of any true reflex occurring in the involuntary nervous system.

Much in the book which is of the deepest interest to all concerned in the progress of knowledge in the various fields of medicine and neurology cannot be touched upon in this review. The book has to be read and read again in its entirety before its true worth can be fully appraised.

Massage: Its Principles and Practice. By JAMES B. MENNELL, M.A., M.D., B.C., &c. (Cantab.). London: J. & A. Churchill. 1917. Royal 8vo. Pp. xvi + 359.

DR. JAMES B. MENNELL's latest book on massage is one which neither the members of the medical profession nor those engaged in the practice of massage can afford to ignore. The subject is treated from a standpoint differing somewhat from that usually found in works of this kind, and is intended not only for practising masseurs and masseuses as a supplement to inadequate training, but also as a book of reference for members of the medical profession in the hope that it may lead to a closer and more intelligent co-operation between them and those appointed to carry out massage treatment for their patients.

The earlier chapters of Dr. Mennell's book are devoted to a consideration of the general principles of massage, its reflex and mechanical effects. In succeeding chapters some of the various movements of massage are described, and one of the most valuable chapters is

that dealing with mobilisation as a sequel to massage, in which many useful hints are given in regard to the administration of passive, or, as the author prefers to call it, relaxed movement. Five chapters deal very fully with the treatment of recent injury, followed by one treating of the circulatory troubles, scars, stiff joints, adhesions, and the loss of muscular power consequent on injury. Very valuable is the description given by the author of the methods employed by him in the re-education of muscle and re-education in walking. Dr. Mennell describes minutely many simple exercises which can be used as an auxiliary to those known as Swedish, and for which only the simplest apparatus, if any, is needed. In subsequent chapters the author describes the methods he finds most efficacious in treating neurasthenia and other diseases for which massage is ordered. Some general remarks on massage as a remedy in the treatment of the wounded are to be found in the last chapter. The numerous illustrations throughout the book add greatly to its value, and in the appendix detailed drawings are given of the apparatus which has been elaborated by the author in order to carry out his scheme of exercises for his patients at the Military Orthopædic Hospital, Shepherd's Bush.

Throughout the book Dr. Mennell insists that care, gentleness and wise sympathy with the patient are the keynote to success in massage treatment. His views are the outcome of a long and varied experience in which he has closely watched the effects of the different methods of applying massage to various cases, and the deductions which he draws from the results obtained should prove highly stimulating to those who are interested in this

T. D.

The Ideal Nurse. By CHARLES A. MERCIER, M.D.
London : The Mental Culture Enterprise. N.D. Pp. 49.
AN address delivered to mental nurses at York in 1909.
It is interesting and suggestive, and may be read with

advantage not only by general nurses but also by their patients. Dr. Mercier tells an interesting anecdote on the authority of Dr. Paul, a former Treasurer of the Medico-Psychological Association. Dr. Paul remembered the death of George III., and had known one of the keepers in charge of the king after he had lost his reason. Dr. Paul asked the keeper what happened when the king was troublesome, and the reply was they "knocked him down as flat as a flounder!"

Tenth Annual Report of the Trustees of Massachusetts Hospitals for Consumptives. November 30, 1916.

The Commonwealth of Massachusetts Public Document, No. 77. Boston: Wright & Potter. 1917. Pp. 124.

UNDER the control of the Board of Trustees of the Massachusetts Hospitals for Consumptives are four institutions providing beds for about 1,100 patients.

It has been the endeavour of the Board to make these institutions sanatoriums in the true sense of the word; thus Rutland Sanatorium is reserved for early and favourable cases, Westfield caters more and more for children, while the North Reading and Lakeville Sanatoriums accept only those patients not necessarily in the incipient stages of the disease, but who at least are regarded as curable or capable of great improvement or of ultimate arrest.

The provision of Tuberculosis Hospitals for advanced cases seems to lie mainly in the hands of the municipalities, but a law passed by the Legislature in 1916 provides for the construction of County Hospitals to provide for districts, chiefly small manufacturing towns and agricultural communities, whose patients cannot now be cared for in Municipal Tuberculosis Hospitals. Tuberculosis Dispensaries have been established in towns and cities of 10,000 inhabitants or over.

The Report contains comprehensive details of the four

institutions under its care. It bears evidence to the thoroughness and attention to detail which seem to characterise the work of each. In a study of the statistical sheets given for each Sanatorium a fact, painful to Irishmen, is brought out—the very high percentage of Irish-born patients and of patients born in America of Irish parentage. Russia, Ireland and Canada show up badly in this regard, but we have no figures before us showing the relative proportion in the general population of those different nationalities, so that no definite conclusions can be drawn from them.

We note that special stress is laid on the value of *x*-rays in noting the progress of any given case of pulmonary tuberculosis especially amongst children, and while using the collapse treatment of the lung by nitrogen gas (artificial pneumothorax).

The Practitioner's Pocket Pharmacology and Formulary.

By L. FREYBERGER, J.P., M.D., Vienna; M.R.C.P. Lond., M.R.C.S. Eng., Barrister-at-Law of the Middle Temple, &c. London: William Heinemann. 1917. F'cap. 8vo. Pp. vii. + 544.

HERE is a book of five hundred and fifty odd pages which nevertheless justifies by its size the description of a "Pocket Pharmacology and Formulary." The end is achieved by the use of thin paper and of a close set type, which is, however, clear and easy to be read. In the words of the Preface the book "aims at giving within the smallest possible compass a complete description and record of the action of all the drugs and preparations of the pharmacopœias of Great Britain and Ireland and of the United States of America; also of some drugs and preparations contained in foreign pharmacopœias, and of those newer productions of chemical research which have proved of value in the treatment of disease but have not yet found a place in official pharmacopœias. The omis-

sions comprise a large number of pharmacological disappointments and those preparations which have not yet passed the experimental stage."

The subject matter has been arranged alphabetically. The author expresses his indebtedness to two well-known and valuable publications—the British Pharmaceutical Codex of 1911, and the Extra-Pharmacopœia (16th Edition). But there are some useful innovations in this new work. For example, "Counter Indications" to the use of various preparations are set out in a separate paragraph; the "Minimum Fatal Dose" is an entry which will be found helpful in prescribing large doses of remedies possessing toxic properties. The symptoms of overdoses of such remedies and the appropriate treatment are also given.

A feature of this book is the inclusion of selected "formulæ" or prescriptions, in which the metric system is employed, with the imperial equivalents added within brackets. The official designation "mil" for a centimetre is not adopted.

In addition to the British Pharmacopœia of 1911 and to the eighth decennial revision of the United States Pharmacopœia the current editions of the Austrian, Dutch, French, German and Swiss Pharmacopœias have been laid under contribution in the compilation of this work, which may, therefore, be regarded as an international pharmacopœia.

There are evidently very few slips in this book. But one puzzled us for a time. On page 452 there is this entry: "Tully's Powder, U.S.P. v. Morphinæ, Pulvis Compositus, U.S.P." On reference to the articles on "Morphina" (pages 288 to 292) the reader will fail to find any allusion to "Pulvis Morphinæ Compositus," which is a substitute for Dover's powder, consisting of about 20 parts each of camphor, prepared chalk, and liquorice, with one part of morphine sulphate. William Tully was an American physician who lived from 1785 to 1859. Curiously enough a similar omission may be detected in the eighth edition

of "Dorland's Illustrated Medical Dictionary," published in 1915. The composition of "Tully's Powder" is, however, given in the third edition of Gould's "Practitioner's Medical Dictionary," revised and enlarged by Dr. R. J. E. Scott, and published by Messrs. H. K. Lewis & Co., Ltd., of Gower Street, London, in 1916, and also in Appleton's "Medical Dictionary," published in 1916.

The only part of Dr. Freyberger's book which does not appeal to us is the Index of Indications and Counter-Indications. A mere string of names of diseases and of drugs occupies 70 pages. The "Indications" for Tuberculosis take up the whole of page 540, except the last line, which, with the first two lines of page 541, give the "Counter Indications" in that infection. What can one learn about the medicinal treatment of typhus fever from the bald statement on the same page (541) that the "Indications" in that disease are "Iodum : Salvarsanum"?

With this critical reservation we can recommend "The Practitioner's Pocket Pharmacology and Formulary" as a useful "Vade mecum." For its size it is a dear book, costing twelve shillings and sixpence net; but it is worth the price.

The Internal Secretions: their Physiology and Application to Pathology. By E. GLEY, M.D.; Professor of Physiology in the College of France. Translated and Edited by MAURICE FISHBERG, M.D.; Clinical Professor of Medicine, New York University. New York: Paul B. Hoeber. 1917. Cr. 8vo. Pp. 241

PROFESSOR GLEY's book partakes more of the nature of a philosophical dissertation on the endocrine glands than of an exposition of their physiology. In the first chapter he deals historically with the origin and development of the concept of internal secretion, and justly assigns much credit to Claude Bernard and Brown-Séquard. In his second chapter the distinctive charac-

teristics of the internal secretory glands and the principal products of their activities are discussed in a general way. The most important part of this chapter is that which defines the value of organic extracts as a means of determining the function of the gland from which the extract is made. Gley insists strongly on the necessity of recognising that the active principal yielded by a gland to the blood may be quite different from what is obtained in the process of making an extract. He further insists on the importance of examining the venous blood from glands in order to ascertain exactly what substance glands actually secrete. In this same chapter he classifies internal secretion into four varieties according to the kind of physiological change that they inaugurate. Chapter III. deals with function, and in particular contains a masterly analysis of the many alleged reciprocal glandular actions. The author points out that in order to prove reciprocal action between any two glands much more than mere anatomical changes must be considered, and that owing to hasty generalisation in the past many functions have been assigned dogmatically to various glands without adequate evidence.

The entire book inculcates thoroughness in the study of the endocrine glands, and points out the path along which investigation should be conducted.

The Dublin University Calendar for the Year 1917-1918. To which are added the Ordinary Papers set in the Year 1916-1917. Vol. I. Dublin: Hodges, Figgis & Co., Ltd. 1917. 8vo. Pp. viii + 62* + 354 + cxxvii.

THERE are no new features in this, the first, Volume of the Dublin University Calendar for the coming academic year. After the "Contents," reference is made at p. viii to the principal changes in the Course of Study made in the year 1916-1917.

The Regulations of the School of Physic will be found

at page 237 and the following pages. Full information respecting the Diploma in Public Health, which was instituted so far back as 1870 under the title of "Diploma in State Medicine," is given at page 256.

The Regulations of the School of Dental Science are set out at page 261. In this subject the University grants two degrees—Bachelor in Dental Science (B. Dent. Sc.) and Master in Dental Science (M. Dent. Sc.).

Other interesting information is conveyed under the headings—Privileges attached to the School of Physic, Prizes, Museums, Post-Graduate Classes, the Recognition by the University of Colonial Teaching Institutions, Dates of Examinations, and Certificates required on entering, for the first time, for any portion of the Final Medical Examination (Part II.).

The Editor of the Volume has done his work in a very thorough and satisfactory manner. His identity is an open secret, but as he seems to desire to preserve his anonymity we respect his wish and forbear to disclose his name.

Blood Pictures: An Introduction to Clinical Haematology. By CECIL PRICE-JONES, M.B. (Lond.); Capt. R.A.M.C. (T. C.); Bacteriologist, British Expeditionary Force, &c. With 5 Coloured Plates and 4 Illustrations in the Text. Bristol: John Wright & Sons, Ltd. 1917. Demy 8vo. Pp. 91.

CAPTAIN PRICE-JONES has succeeded in writing an extremely useful and attractive introduction to clinical haematology. He possesses the power of expressing himself in clear and simple language, which has been set in fine, bold type, which is easy and, indeed, a pleasure to read.

The "blood pictures"—using the term in its literal sense—are shown in five coloured plates, illustrating in sequence red cells, lymphoid cells, leucoid cells, abnormal white cells and marrow cells—the last explained in

an ingenious phylogenetic diagram of blood cells, which forms Appendix III., at page 88.

But in its applied sense, the term "blood pictures" is aptly used in reference to the diagnostic results obtained by blood examinations in clinical practice—a subject which is dealt with in Part II.

Part I. consists of three chapters. In the first of these a clear description is given of the technique of blood examination. Chapter II. describes the various blood cells, and Chapter III. presents the normal "blood picture" or "blood count."

Part II. contains five chapters. A short introduction opens with a pregnant sentence, which is well worthy of quotation. "Speaking broadly," Captain Price-Jones writes, "a leucoid type of blood is associated with a *coccal* infection, a lymphoid type of blood with a *bacillary* infection, and a lymphoid plus large mono-nuclear type with a *protozoal* infection" (page 33). He adds: "When a mixed infection is present, doubtful and misleading pictures occur, one type masking another."

The author is careful to explain that in various forms of anaemia and leukaemia, malignant disease, and other morbid conditions of unknown aetiology not coming into the category of either coccal or bacillary infection, "attention has to be directed to the red-cell and the haemoglobin aspects, to the presence of abnormal red and white cell forms, and to the general character of the complete blood picture" (page 34).

Chapters V. to VIII. develop the foregoing statements. In Chapter V. bacterial infections—coccal and bacillary—are considered. Chapter VI. deals briefly with protozoal (haematozoal and spirochaetal) infections. Under the heading "Blood Diseases," chlorosis, pernicious anaemia, leukaemia, pseudoleukæmia, and von Jaksch's *anaemia infantum*, are discussed in Chapter VII. And, finally, Chapter VIII. presents the blood picture of malignant disease, which "is not of constant type" (page 73).

There are three short appendices. Attention has already been drawn to the third of them. The first gives the formulae for the preparation of Jenner's and Leishman's stains, together with the method of using the latter. Appendix II. deals with the measurement of the size of red blood cells.

The setting of this excellent treatise reflects much credit on the printers and publishers, Messrs. John Wright & Sons, Ltd., of Bristol. The price of the book is six shillings and sixpence net.

The Medical Annual. A Year Book of Treatment and Practitioner's Index. 1917. Thirty-fifth year. Bristol : John Wright & Sons, Ltd. ; London : Simpkin, Marshall, Hamilton, Kent & Co., Ltd.

THIS publication has not only won the good opinion of medical practitioners but retained it. The Editor tells us that it is the thirty-fifth year of issue ; which is conclusive of its popularity, and may we add, usefulness. During this terrible war such a book is of more than ordinary value ; the experience gained at the front and in base hospitals, both in surgery and in medicine, is of incalculable value to Medicine. It has put many theories to the test, and not the least of its benefits is the elimination of many ones which survived too long on the credit of their parentage rather than on their merits. During the last three years our experience of the different antiseptics has greatly increased. New ones have come and shown their value in certain conditions aërobic and anaërobic so plainly and so frequently that we have acquired a power of selection which must be attended with the happiest results in civil as well as military practice. We, however, regret that this subject has not received the attention we think it deserves in this issue of the Annual. We heartily congratulate the editor of the section on radio-activity, a subject on which great advances have been made and the technique of which has been much simplified ; the illustrations in this section are praiseworthy both for beauty and accuracy. "The Dictionary of Treatment" opens with

an article on "Penetrating Wounds of the Abdomen," a subject that has exercised surgeons in Europe since the days of Antyllus; has been written upon by Lanfranck, Chauvilliac, Larrey, Paré, Wiseman, Guthrie and others. With all this outpouring of ink very little progress seems to have been made on the subject; the most modern methods are similar to those of Paré, which are described with some fulness in the *Surgical History of the American Civil War*. Nevertheless, the article is of permanent value, is excellent as reference to treatment, and is beautifully illustrated. The article, "Brain Surgery," is exceptionally good; it evidences the progress of scientific surgery, and tells how much the physiologist of to-day is indebted to the surgeon for information on the subject of cerebral localisation. What a step forward the surgery of the brain has made since the earlier tentative operations of O'Halloran, Pott, and Dupuytren? A somewhat similar progress has been made in lung diseases; progress largely due to bronchoscopy and radiography. "Cerebro-spinal Fever" is the title of an interesting article, in which the aetiology of the disease is treated of with much fulness. It is, however, disappointing to find that no satisfactory line of treatment has, as yet, been found for this terrible disease. Epilepsy is the subject of an excellent article, in which the author pretty severely criticises some recent theories as to the aetiology of this disease. We welcome the criticism, for, as a rule, the theories put forward for the disease seem to have but one effect, of calling out numbers of quacks and innumerable epileptic nostrums. "Gas poisoning" and "Gun-shot Wounds" occupy a considerable space, and are well illustrated and described. We have referred to but a few of the many helpful papers the Annual contains. The remainder, some thirty in number, we commend to our readers as also worth reading; and we consider one and all of the articles well worth study.

The volume is worthy of being preserved as a book of reference, containing, as it does, the epitome of the most practically useful contributions to current medical literature of the past year.

PART III. MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—R. D. PUREFOY, M.D., F.R.C.S.I.

General Secretary—J. A. SCOTT, M.D., F.R.C.S.I.

SECTION OF ANATOMY AND PHYSIOLOGY.

President—PROF. D. T. BARRY, M.D.

Secretary—J. R. D. HOLTY, M.B.

Friday, May 25, 1917.

THE PRESIDENT in the Chair.

Perfusion of the Frog's Heart with Nicotine.

THE PRESIDENT read a paper under this title. He said that hitherto nicotine effects on the heart were chiefly investigated by dropping on the drug diluted without neutralisation. The results of perfusion after neutralisation are much more reliable; and this was the method employed in these experiments.

Nicotine acts on nerve and on muscle, at first exciting and then depressing. The pure accelerator fibres are first stimulated, and in the fresh heart this acceleration is generally accompanied by increased tonus. Later the accelerators are depressed, as shown by negative response to stimulation of the sympathetic, which prior to nicotine caused acceleration.

The inhibitor mechanism is next excited, causing a slowing of the rate and cessation of beat with .8 per cent. solution, the heart remaining quiescent during one to three or four minutes.

The purely augmentor fibres are excited early by nicotine,

but this effect is best revealed after the stimulation of inhibitors has passed off. If one of the augmentors be increased by artificial stimulation before the drug, then the increase in force of the beat caused by this is very great. It has been shown by a simple device that the heart can perform more work in this phase, taking an augmented inflow comfortably and expelling it against increased resistance.

Atropine does not counteract nicotine slowing. Atropine is said to paralyse the vagus endings in doses of .001 mgr. or over. Amounts much greater than this were perfused for some minutes prior to nicotine perfusion, but without affecting the inhibiting action of the latter; therefore, it is probable that nicotine excites the post-ganglionic fibres of the vagus, just as it excites post-ganglionic accelerator fibres.

A phenomenon of much interest observed frequently in the experiments was reversal of the heart beat by nicotine. The ordinarily subordinate mechanism of the ventricle is stimulated by the drug to predominance, so that the ventricle leads the cycle. This may occur with or without cessation of the auricle beat as a preliminary, but the auricle-ventricle interval has been seen frequently to become shorter before reversal set in. It was also shown that a block could be temporarily broken down by nicotine, a 2-1 rhythm being converted to 1-1.

Its action on the muscle-connecting auricle to ventricle points rather to Engelmann's view of a dromotropic delay in the impulse from above (lowered conductivity) than to the De Boer view of a prolonged refractory phase in the ventricle.

Numerous graphic records illustrating the above points were shown.

Modifications of Fatty Compounds in Intestinal Epithelium.

DR. F. W. LAMB, having given a full account of the various histological methods used in the study of fat globules in cells, discussed (a) the morphological, and (b) the chemical and biochemical information obtainable by these procedures. From a series of investigations on the absorption of fatty complexes of known composition he concludes :—

- (1) Acid fats and lipoids are neutralised (Nile Blue).
- (2) Saturated fats are (a) associated with unsaturated lipoids, or (b) are themselves desaturated.

(3) Progressive oxidation methods show different rates of staining before and after absorption.

(4) Fatty acids are not laid down in the epithelium as the corresponding triglycerides.

(5) Anisotropic lipoids are rarely detected by the polarisation phenomena after absorption.

(6) The morphological features are different both in (a) paraffin sections (vacuolation) ; and (b) in frozen sections.

(7) The degree of vascular reaction varies, *re* (a) leucocytic emigration and by vascular dilatation.

(8) Cholesterol can antagonise the irritating effects of free fatty acids.

(9) The amount of fat in the gastric mucosa, in a given animal is in inverse proportion to that in the intestinal mucosa. Its staining reactions are different *re* (a) neutrality ; (b) oxidation rate.

(10) Lipoplasts (?Altmann's granules) are demonstrable only with neutral fats.

Dr. Lamb believes that all fatty bodies, with the exception of triolein, undergo an alteration or partial specialisation in the intestinal epithelium. [His paper is published in full at page 281, *et seq.*]

SHOCK IN ECLAMPSIA.

CRAGIN (*Am. Jour. Obs.*, LXXVI., 211), after numerous trials has abandoned venesection in the treatment of eclampsia. He says that eclamptic patients have subsequent to the convulsions so resembled patients in shock, that venesection appeared illogical as lessening the resistance so much needed. They seemed to need all the blood they had and more too, and this led to the abandonment of the procedure with results which seem to have justified this action. In the cases where formerly venesection was considered indicated with a rapid, high tension pulse, veratrum viride has been used with good effect. The author concludes by saying that his experience leads him to treat ante-partum and intra-partum eclampsia by delivery of the patient with the least shock and trauma possible, treating the toxæmia at the same time. The treatment of post-partum eclampsia is chiefly that of the toxæmia from which the patient is suffering.

SANITARY AND METEOROLOGICAL NOTES.

VITAL STATISTICS.

For four weeks ending Saturday, October 6, 1917.

IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended Saturday, October 6, 1917, in the Dublin Registration Area and the eighteen principal provincial Urban Districts of Ireland was 11.3 per 1,000 of the aggregate population, which for the purposes of these returns is estimated at 1,127,268. The deaths from all causes registered in the week ended Saturday, October 6, and during the period of four weeks ended on that date, respectively, were equal to the following annual rates per 1,000 of the population:—Nineteen Town Districts, 11.3 and 12.7; Dublin Registration Area, 11.5 and 13.9; Dublin City, 11.6 and 14.6; Belfast, 10.2 and 11.9; Cork, 15.6 and 12.6; Londonderry, 14.3 and 17.3; Limerick, 13.5 and 13.2; and Waterford, 15.2 and 12.4.

The deaths from certain epidemic diseases—namely, enteric fever, typhus, small-pox, measles, scarlet fever, whooping-cough, diphtheria, dysentery, and diarrhoeal diseases—registered in the nineteen town districts during the week ended Saturday, October 6, 1917, were equal to an annual rate of 1.5 per 1,000. Among the 77 deaths from all causes in Belfast were 1 from enteric fever, 1 from measles, and 7 from diarrhoeal diseases. The 23 deaths from all causes registered in Cork included 1 from diphtheria and 2 from diarrhoea and enteritis in children under 2 years. Of the 11 deaths from all causes registered in Londonderry 2 were from diarrhoeal diseases in children under 2 years. Of the 10 deaths from all causes in Limerick, 2 were from diarrhoea and enteritis in children under 2 years. The only death recorded in Dundalk was from diphtheria.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock and Kingstown. The population of the area is 399,000.

In the Dublin Registration Area the births registered during

the week ended October 6, 1917, amounted to 180—87 boys and 93 girls, and the deaths to 99—47 males and 52 females.

DEATHS.

The deaths registered, omitting the deaths (numbering 11) of persons admitted into public institutions from localities outside the Area represent an annual rate of mortality of 11.5 per 1,000 of the population. The rate for all deaths registered during the forty weeks of 1917 was 21.6, while in the corresponding period of the preceding ten years, 1907-1916, it had been 22.7.

The 88 deaths appertaining to the Area included 2 from whooping-cough, 1 from diphtheria, 1 from dysentery, and 8 from diarrhoeal diseases, including 7 of children under 2 years old. In the three preceding weeks deaths from whooping-cough had numbered 0, 2, and 2, from diphtheria 2, 1, and 2, and deaths from diarrhoeal diseases 20, 9, and 16 respectively.

Tuberculosis caused 18 deaths, as against 22, 26, and 8, respectively, in the three weeks preceding. Of the 18 deaths ascribed to tuberculosis, 12 were referred to pulmonary tuberculosis, 1 to tubercular meningitis, 1 to abdominal tuberculosis, and 4 to other forms of tuberculosis.

Five deaths were caused by cancer, 5 by pneumonia (2 by broncho-pneumonia, 1 by lobar pneumonia, and 2 by pneumonia, type not distinguished); 12 by organic diseases of the heart, and 3 by bronchitis.

Among deaths of infants under one year old, 2 were ascribed to premature birth, 1 to congenital debility, 1 to congenital malformation, and 6 to diarrhoea and enteritis.

One of the deaths registered was caused by suicide.

Twenty-four of the deaths registered during the week appertaining to the Area were of children under 5 years of age, 17 being infants under one year, of whom 4 were under one month old. Twenty deaths of persons aged 65 or upwards were registered, including 13 deaths of persons of 70 years or upwards.

Of the 88 recorded deaths 31 occurred in hospitals and other public institutions.

STATE OF INFECTIOUS DISEASES.

The following returns of the number of cases of Infectious

Diseases notified under the "Infectious Disease (Notification) Act, 1889," and the "Tuberculosis Prevention (Ireland) Act, 1908," have been furnished by the respective sanitary authorities:—

TABLE I.—SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area—(viz, the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock and Kingstown), and in the Cities of Belfast, Cork, Londonderry, Limerick, and Waterford, during the week ended October 6, 1917, and in each of the preceding three weeks.

A dash (—) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Measles	Rubella or Epidemic Rose Rash			Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain) ^a	Hepatic or Typhoid Fever	Erysipelas	Puerperal Fever	Whooping-cough	Cerebro-spinal Fever	Diarrhaeal Diseases	Pulmonary Tuberculosis	Total
City of Dublin	Sept. 13	—	—	—	—	1	—	—	—	—	—	—	—	1	—	—	—	—	26
	Sept. 23	—	—	—	—	1	—	—	—	—	—	—	—	2	—	—	—	—	24
	Sept. 29	—	—	—	—	2	—	—	—	—	—	—	—	14	—	—	—	—	28
	Oct. 6	—	—	—	—	6	—	—	—	—	—	—	—	8	—	—	—	—	27
Rathmines and Rathgar Urban District	Sept. 15	—	—	—	—	1	—	—	—	—	—	—	—	1	—	—	—	—	2
	Sept. 22	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	2
	Sept. 29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
	Oct. 6	—	—	—	—	1	—	—	—	—	—	—	—	1	—	—	—	—	—
Pembroke Urban District	Sept. 15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	—	—	9
	Sept. 22	—	—	—	—	3	—	—	—	—	—	—	—	—	—	8	—	—	12
	Sept. 29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	—	—	8
	Oct. 6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9
Blackrock Urban District	Sept. 15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Sept. 22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Sept. 29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Oct. 6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Kingstown Urban District	Sept. 15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Sept. 22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Sept. 29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Oct. 6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City of Belfast	Sept. 15	—	—	—	—	15	—	—	—	—	—	—	—	4	3	—	—	—	27
	Sept. 22	—	—	—	—	18	—	—	—	—	—	—	—	4	1	—	—	—	23
	Sept. 29	—	—	—	—	12	—	—	—	—	—	—	—	1	2	—	—	—	19
	Oct. 6	—	—	—	—	9	—	—	—	—	—	—	—	5	6	—	—	—	24
City of Cork	Sept. 15	—	—	—	—	1	—	—	—	—	—	—	—	1	1	—	—	—	6
	Sept. 22	—	—	—	—	—	—	—	—	—	—	—	—	4	1	—	—	—	11b
	Sept. 29	—	—	—	—	3	—	—	—	—	—	—	—	1	2	—	—	—	6
	Oct. 6	3	—	—	—	—	—	—	—	—	—	—	—	3	1	5	3	—	11
City of Londonderry	Sept. 15	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	5
	Sept. 22	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
	Sept. 29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	Oct. 6	—	—	—	—	7	—	—	—	—	—	—	—	1	—	—	—	—	8
City of Limerick	Sept. 15	—	—	—	—	2	—	—	—	—	—	—	—	—	1	—	—	—	3
	Sept. 22	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
	Sept. 29	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	5
	Oct. 6	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
City of Waterford	Sept. 15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Sept. 22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Sept. 29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Oct. 6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1

^a Continued fever.

^b Not including one case of cerebro-spinal fever.

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

Table II. exhibits the number of cases of certain infectious diseases treated in the Dublin Hospitals during the week ended October 6, 1917, and the number under treatment at the close of each of the three preceding weeks.

TABLE II.

Diseases	No. of Cases in Hospital at close of the week ended			Week ended October 6.			
	Sep ^t . 15	Sept. 22	Sept. 29	No. admitted	Dis- charged	Died	No. under treat- ment at close of week
Enteric Fever	32	38	35	4	4	—	35
Typhus	—	—	—	—	—	—	—
Small-pox	—	—	—	—	—	—	—
Measles	6	9	5	7	1	—	11
Scarlet Fever	25	24	24	15	7	—	32 ^a
Diphtheria	10	13	14	8	3	2	17
Pneumonia	23	26	29	5	8	—	26

* Exclusive of 5 patients in "Beneavin," Glasnevin, Dublin, the Convalescent Home of Cork Street Fever Hospital.

From this Table it appears that the cases admitted to hospital during the week ended October 6, and the cases under treatment at its close, respectively, were as follows:—Enteric fever, 4 and 35; measles, 7 and 11; scarlet fever, 15 and 32 (exclusive of 5 convalescents at Beneavin, the Convalescent Home of Cork Street Hospital); and diphtheria, 8 and 17. Five cases of pneumonia were admitted during the week, and 26 remained under treatment at its close. Of the deaths in hospital during the week 2 were caused by diphtheria.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, October 6, in 96 large English towns (including London, in which the rate was 11.2) was equal to an average annual death-rate of 10.3 per 1,000 persons living. The average rate for 16 principal towns of Scotland was 10.7 per 1,000, the rate for Glasgow being 11.3, and that for Edinburgh 11.6.

INFECTIOUS DISEASES IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended October 6. From this Report it appears that of 37 cases notified, 11 were of scarlet fever, 10 were of diphtheria, 10 of pulmonary tuberculosis, 4 of other forms of tuberculosis, 1 of cerebro-spinal fever, and 1 of erysipelas. Among the 330 cases of infectious diseases in hospital at the close of the week were 126 of pulmonary tuberculosis, 91 of scarlet fever, 64 of diphtheria, 20 of whooping-cough, 5 of erysipelas, 5 of measles, 4 of cerebro-spinal fever, and 2 of enteric fever.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of September, 1917.

Mean Height of Barometer,	-	30.001 inches.
Maximal Height of Barometer (29th, at 9 a.m.)	30.392	„
Minimal Height of Barometer (1st, at 9 a.m.),	29.516	„
Mean Dry-bulb Temperature, -	-	56.1°.
Mean Wet-bulb Temperature,	-	53.8°.
Mean Dew-point Temperature,	-	51.7°.
Mean Elastic Force (Tension) of Aqueous Vapour,	.385	inch.
Mean Humidity, -	-	85.4 per cent
Highest Temperature in Shade (on 3rd),	-	68.0°.
Lowest Temperature in Shade (on 21st),	-	46.9°.
Lowest Temperature on Grass (Radiation) (21st)	42.0°.	
Mean Amount of Cloud,	-	60.6 per cent.
Rainfall (on 15 days), -	-	1.579 inches.
Greatest Daily Rainfall (on 17th),	-	0.358 inch.
General Directions of Wind,	-	S.W., W.

Remarks.

September, 1917, proved to be a mild and favourable if somewhat dull month. The amount of cloud at 9 a.m. was especially large for the time of year, and the cloudiness often persisted till evening, so interfering with solar radiation. To this cause must be attributed the absence of any very high day-temperatures, although the mean temperature of the month was 1.5 degrees above the average.

Speaking generally, the weather was of the westerly or Atlantic type—that is, changeable, breezy, cloudy and showery. Numerous atmospheric depressions, none of which were of great depth or intensity, passed eastwards from Iceland to Norway or skirted our western shores on a north-easterly track in the middle part of the month. The opening and closing periods were relatively fine and warm. The respective mean temperatures of the weeks ended the 9th, 16th, 23rd and 30th were 58.8° , 56.3° , 56.8° and 57.3° . It will thus be seen that an appreciable increase of air temperature took the place of the seasonal decrease which might reasonably have been looked for about the autumnal equinox. In Dublin there was an entire absence of electrical disturbances during the month. At Spitzbergen the first sharp frost of the season occurred on the night of the 14th–15th, when the thermometer fell to 18° in the screen, rising no higher than 28° during the following day.

In Dublin the arithmetical mean temperature (57.5°) was 1.6° above the average (55.9°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 56.1° . In the fifty years ending with 1915, September was coldest in 1886 and 1892 (M. T. = 53.0°), and warmest in 1865 (M. T. = 61.4°) and 1898 (M. T. = 60.2°). In 1915 the M. T. was 57.2° ; in 1916 it was 56.8° .

The mean height of the barometer was 30.001 inches, or 0.091 inch above the corrected average value for September—namely, 29.910 inches. The mercury rose to 30.392 inches at 9 a.m. of the 29th, and fell to 29.516 inches at 9 a.m. of the 1st. The observed range of atmospheric pressure was, therefore, 0.876 inch.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 56.1° , or 1.8° below the value for August, 1917. Using the formula, *Mean*

Temp. = Min. + (Max. — Min.) × .476, the mean temperature was 57.2° , or 1.5° above the average mean temperature for September, calculated in the same way in the thirty-five years, 1871–1905, inclusive (55.7°). The arithmetical mean of the maximal and minimal readings was 57.5° , compared with a thirty-five years' average of 55.9° . The mean maximum was 62.9° ; the mean minimum was 52.1° . On the 3rd the thermometer in the screen rose to 68.0° —wind, S.W.; on the 21st the temperature fell to 46.9° —wind, W. The minimum on the grass was 42.0° on the 21st.

The rainfall was 1.579 inches on 15 days. The average rainfall for September in the thirty-five years, 1871–1905, inclusive, was 2.219 inches and the average number of rain-days was 15. In 1871 the rainfall was very large—4.048 inches on, however, only 13 days; in 1913 it was 4.310 inches on 13 days; in 1896 no less than 5.073 inches fell on 23 days, establishing a record rainfall for September. On the other hand, in 1865, only 0.056 inch was measured on but 3 days. In 1912 only 0.570 inch fell on 8 days, and in 1915, only 0.907 inch, but on as many as 16 days. In 1916, the September rainfall was 2.141 inches on 14 days.

High winds were noted on 9 days, and once attained the force of a gale—on the 20th. Fog occurred on the 19th. A solar halo was seen on the 18th and again on the 23rd.

The rainfall in Dublin during the nine months ending September 30th amounted to 22.471 inches on 139 days, compared with 24.172 inches on 166 days in 1916, 20.172 inches on 150 days in 1915, 15.827 inches on 140 days in 1914, 20.982 inches on 140 days in 1913, 22.658 inches on 158 days in 1912, 12.599 inches on 120 days in 1911, 25.108 inches on 159 days in 1910, only 10.968 inches on 112 days in 1887, and a thirty-five years' average of 20.160 inches on 146 days.

At the Normal Climatological Station in Trinity College, Dublin, Mr. T. Mulock Bentley reports that the mean height of the barometer at 9 a.m. and 9 p.m. was 30.020 inches. The observed range of atmospheric pressure was from 29.553 inches at 9 a.m. of the 1st to 30.400 inches at 9 a.m. of the 29th. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 57.9° . The arithmetical mean of

the daily maximal and minimal temperatures was 58.1°. The screened thermometers rose to 70° on the 3rd, 16th and 25th, and fell to 46° on the 18th. On the 18th the grass minimum was 37°. Rain fell on 15 days to the amount of 1.61 inches, the greatest fall in 24 hours being 0.43 inch on the 17th. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 99.9 hours, of which 9.8 hours occurred on the 2nd. The mean daily duration of bright sunshine was only 3.33 hours. The mean earth temperatures were—at 1 ft., 58.1°; at 4 ft., 57.0°.

At Ardgillan, Balbriggan, Co. Dublin, 210 feet above sea-level, Captain Edward Taylor, D.L., measured 1.26 inches of rain on 15 days, the rainfall being 0.69 inch below the average and the rain-days being 1 in excess. The heaviest fall in 24 hours was 0.21 inch on the 22nd. The total rainfall from January 1 amounts to 22.57 inches on 149 days. The rainfall is 1.84 inches above, and the rain-days are 12 above, the average. The maximal temperature in the shade was 67.7° on the 6th, the minimum was 43.1° on the 21st. Within the past 20 years September was driest in 1894, with a rainfall of only 0.11 inch on only two days (the least in any month); wettest in 1913, the rainfall being 5.54 inches on 12 days.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was 1.115 inches on 11 days, the greatest fall in 24 hours being 0.240 inch on the 22nd. Up to September 30, the rainfall in 1917 amounted to 19.645 inches on 132 days.

Mr. J. Pilkington reports that the rainfall at Stirling, Clonee, Co. Meath (231 feet above sea-level), was 1.77 inches on 15 days. The largest amount recorded in 24 hours was 0.33 inch on the 22nd. Since January 1st, 1917, the rainfall at Stirling amounts to 23.47 inches on 147 days.

The rainfall recorded at the Ordnance Survey Office, Phoenix Park, was 1.71 inches on 15 days, the greatest measurement in 24 hours being 0.36 inch on the 22nd. The total amount of sunshine at this station was 101.0 hours, the most registered on any one day being 9.8 hours on the 14th.

At Cheeverstown Convalescent Home, Clondalkin, Co. Dublin, Miss Mary Love recorded a rainfall of 2.07 inches on

16 days, the maximal fall in 24 hours being 0.38 inch on the 17th.

At 89 Anglesea Road, Donnybrook, Dublin, Mr. F. Dudley Joynt registered 1.405 inches of rain on 13 days, the greatest fall in 24 hours being 0.290 inch on the 17th. Up to September 30, the rainfall at this station was 20 085 inches on 126 days.

Mr. Harold Fayle sends the following weather report for September, 1917, from Sandford Lodge, Ranelagh, Dublin :—

Mean corrected Height of Barometer,	-	29.997 inches.
Highest corrected Reading (29th, 9 hours),	-	30.39 ,,
Lowest corrected Reading (1st, 8 hours),	-	29.47 ,,
Mean Dry Bulb Temperature	-	56.6°.
Mean Wet Bulb Temperature,	-	54.2°.
Mean Vapour Pressure,	-	13.2 millibars
Mean Humidity,	-	85 per cent.
Mean Maximal Temperature,	-	64.7°.
Mean Minimal Temperature,	-	50.8°.
Arithmetical Mean Temperature,	-	57.8°.
Highest Temperature in Screen (6th),	-	71°.
Lowest Temperature in Screen (18th),	-	45°.
Lowest Temperature on Grass (18th),	-	35°.
Nights of Ground Frosts,	-	0.
Rainfall (on 18 days),	-	1.58 inches.
Greatest Daily Rainfall (22nd),	-	0.24 inch.
Mean Amount of Cloud,	-	62.5 per cent.
Days of Clear Sky,	-	2.
Days of Overcast Sky,	-	9.
General Directions of Wind,	-	N.W.

Dr. Arthur S. Goff reports that at Belfort House, Dundrum, Co. Dublin, the rainfall for the month was 1.52 inches on 19 days. The greatest daily fall was 0.24 inch on the 17th. Temperature ranged from 72° on the 16th to 48° on the 19th. The mean shade temperature was 58.8°.

At Marino, Killiney, Co. Dublin, Mr. Wm. J. McCabe, the observer for the Right Hon. Laurence Waldron, D.L., recorded a rainfall of 0.77 inch on 13 days, the largest measurement in 24 hours being 0.13 inch on the 22nd. On the 1st and 12th 0.12 inch fell. The average September rainfall at

Cloneevin, Killiney, in 24 years (1885-1908) was 1.961 inches on 12.9 days.

Dr. J. H. M. Armstrong, M.B., reports that at Coolagad, Greystones, Co. Wicklow, the rainfall was 1.42 inches on 14 days. The heaviest fall in 24 hours was 0.44 inch on the 5th. At Coolagad the rainfall since January 1st, 1917, has been 23.20 inches on 141 days. Temperature in the shade ranged between 69° on the 16th and 48° on the 20th and 26th.

At Blairfinde, Greystones, Miss Maude Moore, for Mrs. Sydney O'Sullivan, recorded a rainfall of 1.240 inches on 16 days. The greatest rainfall in 24 hours was 0.430 inch on the 5th.

Dr. F. O'B. Kennedy, Resident Medical Officer, reports that at the Royal National Hospital for Consumption for Ireland, Newcastle, Co. Wicklow, rain fell to the amount of 1.56 inches on 16 days, the heaviest rainfall in 24 hours being 0.51 inch on the 5th. The screened thermometers rose to 69° on the 3rd, 4th, and 17th, and fell to 45° on the 28th. The mean maximal temperature was 63.7°, the mean minimum 49.8°, and the arithmetical mean temperature 56.8°.

The Rev. Canon Arthur Wilson returns the rainfall at the Rectory, Dunmanway, Co. Cork, at 2.15 inches on 20 days, the heaviest fall in 24 hours being 0.39 inch on the 25th. The total fall in the completed 9 months of 1917 has been 34.95 inches, or 5.05 inches less than the average of the same period (40.00 inches). It was a very damp, misty month, with constantly recurring showers, which kept the ground very moist and unfavourable to harvest operations. There were several night-frosts. The first three days and also the periods from the 10th to the 12th and from the 26th to the end were very fine.

GYNÆCOLOGICAL POST-OPERATIVE TREATMENT.

HYDE (*Am. Jour. Obs.*, LXXV., 378) has found a distinct improvement in the condition of his patients since he adopted the following "four-step-routine":—1. Morphinisation of the patient. 2. A rectal tube is placed in position. 3. Sand-bags are placed on the abdomen. 4. Olive oil is administered by mouth. Each of these steps is considered *seriatim*.

B.S.

PERISCOPE.

THE TREATMENT OF CONTRACTED PELVES.

RONGY (*Am. Jour. Obs.*, 1917, LXXV., 220) summarises his experience. He has the second largest series of pubiotomies—viz., 28—but his results with this operation will not gain many enthusiastic adherents. He concludes as follows:—
1. All primaparæ must be carefully watched for disproportion of foetal head and pelvis from the 36th week of pregnancy. As soon as signs of disproportion appear labour should be induced. 2. Pregnancy should not be allowed to continue much beyond the computed date, for, in addition to a possible dystocia, nearly 25 per cent. of these infants die during labour. 3. Induction of labour after the 36th week of pregnancy is comparatively safe for both mother and child. 4. High forceps has no place in modern obstetrics. It should never be used in primaparæ. In multiparæ who suffer from simple flat pelvis it may be occasionally tried. 5. Craniotomy should not be performed on a fully viable child. It should be only done in cases in which the child is dead or dying. 6. In cases which were misjudged or neglected and the child is still fully viable, pubiotomy is the operation of choice, for Cæsarean section in such cases must be eliminated because of presupposed infection. 7. Pubiotomy and Cæsarean section never compete. One is the operation of election, the other of emergency. The mortality rate of the mother in pubiotomy is 3 per cent. Should Cæsarean section be performed in these cases the mortality rate of the mother would be over 20 per cent. 8. Pubiotomy should never be performed when the disproportion of the foetus and pelvis is too great. Injury to the sacro-iliac joint will occur if the separation of the cut ends of the bone is more than 5 to 6 cm. 9. The Gigli saw may be used as a prophylactic measure in cases of breech extraction, in which some difficulty is expected in the delivery of the head; should it be found necessary, the bone can be quickly severed in order to permit the head to pass through.

B. S.

NEWER METHODS OF GENERAL ANESTHESIA.

DR. R. C. COBURN (*New York Medical Record* Vol. XCI., No. 9) advocates the insufflation method for the administration of ether vapour as a general anaesthetic. He recognises three important subdivisions of the method—laryngeal, pharyngeal, and tracheal. By means of a laryngoscope the vocal cords are exposed and a semipliant catheter is passed between them, and on into the trachea, until the distal end reaches to about an inch above the bifurcation. The proximal end is then connected with the ether supply and the insufflation begins. By this method there can be no obstruction caused to free respiration by the tongue or other tissues of the throat. As by this method the expired air is continuously flowing outwards external to the catheter, the risk of the aspiration of blood and foreign matter is effectually prevented. Dr. Coburn claims that under this method artificial respiration may be maintained for hours or even days. The amount of air insufflated into the trachea is about 270 gallons per hour, or practically double the usual respiratory movement. This amount of air is sufficient to keep the lungs distended when the pleural cavity is open, and tracheal insufflation has, therefore, come to be quite extensively used in chest surgery. In pharyngeal insufflation, after the patient is deeply anaesthetised the short catheter is passed through the nares into the pharynx, and the insufflation begun. The amount of air insufflated need not always be so much as that required in the tracheal method, but the amount of ether vapour must be the same. The obstruction at the base of the tongue is automatically removed by this method, but not so perfectly as in the tracheal method. Pharyngeal insufflation possesses special advantages for chest surgery. After the chest cavity is opened, the distension of the lung is under more pliable control with pharyngeal insufflation, as such distension is continuous in the tracheal method. The distended lung is always in the field of operation on account of this distension, and thereby interferes with the work of the surgeon, whereas in the pharyngeal method, the lung of the side under operation

collapses, thereby facilitating the work of the surgeon. When the operation is completed and the surgeon is ready to tie the last sutures, the collapsed lung is easily and quickly expanded by placing a wet towel over the patient's face. This retards the outflow of air, and the insufflated air is of such large volume that it quickly distends the lung.

CANCER.

CANCER is now believed to be not hereditary in any appreciable degree (*The Charlotte Medical Journal*, Vol. LXXIV., No. 4). It is generally conceded that the influence of the internal secretions on metabolism and the life process of the economy have some collocation with cancer. Mouse cancer can be transplanted and successfully carried through many generations of mice: but this does not give us the desired information in regard to the aetiology of cancer. Cancer tissue may be cultivated in vitro, but we cannot initiate the growth of cancer in any kind of animal. Cancer does not appear to be purely a local affection, but the result of some previous systemic or metabolic disturbance. The underlying principles which permit the growth of body cells and which permit them to over-run their normally prescribed boundaries still continue to elude the host of scientific workers, and cancer still remains an unsolved mystery.

OBSCURE CASES OF POISONING.

DR. ALBOUGH (*Journal of the A. M. Ass.*, April 7th, 1917) reports the following endemic cases of poisoning, which he investigated as Director of Industrial Hygiene of Ohio. One workman was found in an unconscious condition, respirations shallow and rapid, pulse quick and weak; soon another worker became unconscious, and a little after both men were vomiting and one of them died. Other workers had symptoms of throbbing headaches, dizziness, palpitation and epigastric pain. The men were conveyed to an hospital and on the journey two of the men recovered consciousness, while the other felt much better by the time the hospital was reached. A second death occurred in one of the unconscious men, while the rest recovered, and in a few days seemed none the worse

for their experience. Four days later the superintendent and several other men were stricken with the same symptoms, and three days later another of the group died from what was apparently pneumonia. An autopsy revealed red hepatisation of the right lung in one subject ; in the other the right lung was bound down by lateral adhesions. The cause of all the sickness was found to be due to carbon monoxide gas which was formed as a result of smouldering incomplete combustion of cinders occurring about five feet below the surface of the ground in the "fill" or dump, upon which the construction camp had been erected. An opening in the earth at the edge of the dump had shown a small column of steam arising from this quarter and the investigation of this led to the finding of the red hot cinders three feet below frozen ground. The men working on trenches digging for the purpose of outlets for the steam became affected as the other men had been (*The New York Medical Record*. Vol. XCI., No. 6).

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Vitamogen.

THIS highly specialised food was introduced about two years ago by the Chairman of Messrs. Williams & Co., of 24 Holborn, London, E.C., who had previously designed the very useful preparation now so well known under the name of "Virol." Vitamogen is a perfect food, as may be seen from the following analysis by Mr. A. W. Stokes, F.C.S., F.I.C., public analyst. In 100 parts by weight it contains—water, 2.95 ; proteins, 24.25 ; invert sugar, 20.80 ; starch, 31.25 ; fat, 2.53 ; cellulose gums, &c., 10.62 ; ash, 7.60, equal to 2.61 per cent. of phosphoric acid. This analysis agrees very closely with one made by *The Lancet*—namely, moisture, 7.00 per cent. ; mineral matter, 7.50 (equal to 2.50 per cent. phosphoric acid) ; protein 24.96 ; sugar, 20.83 ; starch, 26.26 ; fat, 1.51 ; cellulose or fibre, 11.95 per cent. The name "Vitamogen." of course, conveys the idea that the preparation is rich in vitamines, those basic nitrogenous substances the presence of which in the food "is essential for the maintenance of the proper metabolism

of the peripheral nervous system" (H. W. Bywaters, D.Sc.). It was Dr. Casimir Funk who introduced the term "Vitamine" in 1913 (*Ergebnisse der Physiologie*, Vol. XIII.), when he succeeded in extracting this remarkable substance from rice-bran or polishings. The fact that vitamogen contains, in addition to vitamines, a large proportion of organic phosphates, testifies to its value as a food for invalids, convalescents, and delicate children. Two or three teaspoonfuls, in the case of adults, and one or two teaspoonfuls, to children, according to age, may be given three or four times a day in beef-tea or other soups, or in a cup of milk, having first mixed the powder with a little hot, but not boiling, water.

"Wellcome" Brand Toilet Lanoline.

ALTHOUGH primarily intended for toilet use "Wellcome" Brand Lanoline is also suitable for application in many skin conditions, for which purpose its great refinement and purity render it preferable to crude preparations of wool fat. It is delicately perfumed and rubs readily into the skin without leaving any suggestion of a viscid film. Messrs. Burroughs, Wellcome & Co. issue the preparation in collapsible tubes of two sizes at six shillings and twelve shillings per dozen. The screw cap is of the improved style, familiar to users of the other products issued in tubes by the Firm—large, easily removed and not readily mislaid.

LITERARY NOTE.

THE sixth edition, revised and enlarged, of "Tropical Diseases," by Sir Patrick Manson, G.C.M.G., M.D., F.R.S., has recently been published by the house of Cassell, La Bello Sauvage, London, E.C. 4. In view of the rapid advances that are being made in the study and treatment of Tropical Diseases the author has subjected the book to a thorough revision. The chapter on Mosquitoes and the sections on Tset-tse Flies and Ticks have been brought up to date by Lieut.-Colonel Alcock, C.I.E., F.R.S., of the London School of Tropical Medicine.

THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

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PART I. ORIGINAL COMMUNICATIONS.

ART. XV.—*Prognosis*.^a By HENRY C. DRURY, M.D.
Dubl., F.R.C.P.I., Physician to Sir Patrick Dun's
Hospital, Dublin.

“LIFE is short, and the Art long, the Occasion fleeting, Judgment difficult, Experience fallacious.” Thus spoke Hippocrates in his first aphorism, and there has passed no day since that does not prove its truth, and I do not know of anything to which it applies with more aptness than to prognosis.

It is not till long after we have learned to make a diagnosis that we can begin to learn to make a prognosis; and of the two perhaps the latter is the more difficult.

Though upon diagnosis may depend the question of life or death, upon prognosis may depend all that makes life worth living. Prognosis deals not only with the ultimate termination of a case, but also with much leading up to that and much more, stretching away into the future, long after the case has passed out of our care or ken, often even extending to other individuals, born or unborn.

^a Read before the Section of Medicine in the Royal Academy of Medicine in Ireland on Friday, October 26th, 1917.

Diagnosis depends largely on facts; prognosis depends largely on experience, which is fallacious, upon judgment, which is always difficult and often swayed by sentiment, and frequently has nothing to depend upon but "If." We are all conscious of our inability to weigh properly the conditions present in the case of those closest to us in the ties of affection or kindred. Here we are swayed by sentiment so as to be unduly buoyed up by hope, or more frequently depressed by fear. Hence it is that we seek the aid of another who will study the *case* when we can only view the *person*.

Or again, suppose we have to deal with what apparently is a mild case of enteric fever where "if" looms so large in our outlook. Suddenly and without warning haemorrhage or perforation changes our outlook from hope to fear, and the "if" becomes diminutive.

For some, especially the rarer cases, or those that are long drawn out, life is quite too short and the art too long. We have to fall back on the combined experiences of many other observers, and this is never so self-helpful as our own. No two cases are alike, surrounding circumstances and collateral conditions still further vary them. Here our experience is so limited that our judgment is formed of patchwork. In any one of the very chronic diseases of the central nervous system for instance, to see it through, we must get it early in our medical life, and it lasts until we have become stale and old in it. How rare is it to have even a chance of this! They come across our path for a season, and drift out of it again into other channels, where we never meet with them again.

Having made a diagnosis we feel immediate satisfaction; prognosis keeps us long in anxiety and doubt. How true is this in some of the most common conditions we meet with! Take, for instance, Bright's Disease. In no case I think is the contrast so marked. The merest tyro will make the diagnosis with ease and promptly, but in the great majority of cases who amongst us will venture upon a prognosis except in the vaguest terms?

For my own part I feel that the greater and larger becomes my experience of nephritis cases, the more uncertain do I feel in forecasting their course, and there is only one condition which so far has not failed me in helping to form a judgment of the course of a case. That is, of course, the appearance of eye symptoms, which in my experience always marks a rapid downhill course.

Let me briefly cite some examples. An unmarried lady, aged only 40, while dressing one morning got a fulminant apoplexy, and died in about 36 hours. I had known her for years. She had a good colour, was active, strong, fond of exercise, led a healthy life, and was not self-indulgent in any way. I never knew her to be ill, and as I attended any of the family who required medical advice, I think she would also have sought it if she had felt anything wrong, but I never saw her professionally until the stroke occurred. I then found that her urine contained a small quantity of albumen. Had I tested the urine a year previously and found the same condition present I doubt whether I would have thought it right to alarm her and her friends by telling them taking into account her apparently excellent health, &c. Yet suddenly and without warning nephritis brought about this fatal result.

Another unmarried woman died in coma. For over twelve years she had been under my observation. Seventeen times she had been a patient in Sir Patrick Dun's Hospital. Always she had a very large quantity of albumen in the urine. On several occasions she was admitted in an extreme condition of anasarca, the most extreme I think I have ever seen. On one occasion the legs had to be punctured to relieve the pain caused by the stretching of the skin and other tissues. From time to time most of her serous cavities had been tapped. On other occasions she came in on account of uræmic symptoms, but without a trace of oedema anywhere, and it was in this condition, with great emaciation, that she died. On several occasions she appeared to everyone to be *in articulo mortis*, but revived, and recovered sufficiently to leave the hospital.

In the intervals of her visits to hospital she went about her household duties, and was to all appearance quite well, but she perfectly knew the warnings which told her to come to hospital. Yet for twelve years she carried on, but never till her last illness had I any idea how long she would be able to do so. From experience I had learned that when she appeared to be dying, we should not give up hope, as for years before she had frequently given the lie to the apparently obvious prognosis of everyone. However, about two months before her death she began to complain of failing eyesight. I found she had developed retinitis, and was able to tell her sister that the end was approaching, and that when she again came into hospital it would be her last visit, and thus it proved.

A gentleman aged 57, whom I had known for years, seemed to me to be the embodiment of healthy vigour. I often met him cycling alone or with parties, and he enjoyed life like a boy. One day he came to my study and related vague symptoms. I found a moderate amount of albumen in his urine. Having prescribed for him and given him instructions he casually remarked that his sight had been lately getting very bad. I examined and believed he had retinitis, but such a diagnosis was too serious for me to depend on my own examination alone. I sent him to the late Dr. FitzGerald, who reported that there were very serious changes in the retina. I at once informed his family of his grave condition. He died within three months in coma. Dyspnoea was the painful feature of those three months.

In the first case, even had a diagnosis been made beforehand what was there to help prognosis? Even if high tension had been found who would have prognosticated the probability of cerebral haemorrhage in a woman of 40, who otherwise looked and felt in perfect health?

In the other two, where the only aid to prognosis that I know of appeared, how utterly dissimilar they were. The only feature common to both was albuminuria, one with twelve years' symptoms and the other with three

months'. The female was very poor and had to put up with poor surroundings and indifferent food; the male was rich, lived in the country, and had all the delicacies that an invalid required and all the comforts of home. What was there to help a prognosis of three months in his case and twelve years in the other?

Heart cases form another series in which in the majority of cases the diagnosis is a comparatively simple matter, but the prognosis requires years of experience, thorough understanding and serious consideration. Prognosis here entails vastly more than the ultimate result, and the data for this are neither numerous nor clear. Perhaps the most important of these is the condition of the heart muscle, and what material have we on which to form a judgment about it? Little except hypothesis, which requires long experience and careful observation to make it worth anything.

The cases in which one can say that a certain valve is incompetent are often not the most serious from the standpoint of prognosis, even though they, at times, give rise to more urgent symptoms. Those in which no organic lesion at all can be detected are often of the utmost gravity, and require the most judgment and experience for arriving at a true prognosis. Here we have little to go on except the condition of the heart muscle. Whether the organ is increased in size from dilatation or hypertrophy or both, the quality of its beat, its behaviour under conditions of rest or exertion, and the general performance of its functions in carrying on the circulation in the various parts of the body. No one of these conditions is sufficient in forming our judgment, all or several must be considered together before we are in a position to form any opinion of value.

For instance, a lady patient has been under my observation for over ten years. When I took up the case I was told that her heart was in a very precarious condition, as some years before a physician of repute had informed her friends that her pulse was so weak and irreg-

ular she might die at any moment on making slight exertion. As a consequence she very seldom had been out of doors, and that only to drive on picked days. She lived mostly in one room with the door and all the windows tightly closed for fear of the least draught, and a fire in the room nearly all the year round. She was then nearly 70 years of age, and had lived an active busy life. She is now in her 80th year, active in mind, and for her years active in body, goes about her house, gardens assiduously when the weather permits, and visits her friends, using the trams to their furthest ramifications. Her pulse is still, and always has been when I have seen her, of the same extremely irregular and weak character, so much so that it is generally quite impossible to count it. Yet there is no sign of valvular incompetence nor any other sign indicating failure of the heart-muscle.

In this case it is probable that too much weight was given to one sign alone, which was so marked that other indications were ignored. The result was faulty prognosis, entailing years of anxiety and joyless unhealthy invalidism.

Glycosuria, including diabetes, is easy of diagnosis, and prognosis can be given with more confidence than in most other diseases, for the data at our disposal are more definite. Age, temperament, physical structure, occupation, heredity, response to treatment, all have very precise bearings on its course, and enable us to form a truer perspective than is usually given us. The outlook will not be unduly roseate if we find the disease in a man of middle life, temperate in living, wiry, active in body and mind, with high-strung nervous system, together with large business interests, home anxieties or arduous occupation, not responding well to the early stages of treatment, and rather impatient under it. It is unnecessary to labour this subject, for illustrations would be endless they would be so diverse. Opinions too will widely differ—but I do think, after consideration, that we have better grounds here for forming a prognosis than in most other conditions.

What shall we say of phthisis? How often does it disappoint our hopes and upset our calculations?

When I was a small boy I was sent on many a weary tramp to a neighbour's house to inquire for a young girl believed to be dying of consumption, and I was warned not to be surprised if I heard she was dead, and instructed how to conduct myself in that event. The sister had very recently died of rapid consumption. This girl had had several haemorrhages, and appeared to be going the same way. She was confined to bed and her life was quite despaired of. In later years I had many a pleasant dance with her, and a couple of years ago met her after a long interval, a married woman, beautiful, vivacious and healthy.

Here is the converse picture. A young man about 20 years of age, feeling perfectly well, looking the picture of health and strength to his many friends, attended my clinique one morning, the next morning he had haemoptysis. This continued, high temperature developed, and on the tenth day he died. Experience was here fallacious and judgment difficult in attempting a prognosis.

Even when it is perfectly evident that Death is about to claim his victim, those of us who have learned by experience know better than to express an opinion just when he will stretch out his hand and take it.

A girl with pulmonary tuberculosis was for many weeks under my care in hospital, daily growing weaker, more emaciated, less vital. Day after day I was surprised to find her still there. She had become so weak that she could not feed herself nor raise her hand a foot off the bed. In this condition she said to me with whispering voice and faltering breath—"Doctor, if you will let me sit ~~up~~ by the fire, and have a mutton chop for my dinner, I'll be all right." She died an hour later. Yet I could no more have told that this would happen before my visit next day than I could have told any day of the previous fortnight that she would have lived so long.

Ars longa, Vita brevis, est.

ART. XVI.—*On Eugenics limited to the Care of Pregnant Women, advocating Expectant Mother Hospitals and Special Dispensaries.*^a By PROFESSOR ALFRED SMITH, President Obst. Sect. R.I.A.M.; Professor of Midwifery, N.U.I.; Gynæcologist, St. Vincent's Hospital, &c.

I THANK the Council for the honour done me by electing me their President for a second term. I have an unpleasant duty to perform, to mark the sense of the loss the Academy and our Section have sustained by the death of Dr. Frederic W. Kidd, a past President of this Section, for many years member of your Council. He contributed largely to the debates and read many papers of great practical utility. He was a loyal colleague and a most energetic worker in all that pertains to the welfare of the profession. His genial presence will be much missed.

On searching round for a subject on which to address you I thought that possibly a discussion on Eugenics limited to the care of pregnant women and the influence such care will have on the health of infants—tending to reduce the appalling death-rate of children under one year—would touch on a subject of great public utility and suggestive to members of this section.

Biologically speaking, pregnancy represents the highest function of the female reproductive organs; it is also the most critical period of a woman's life. Because pregnancy is a physiological condition it does not follow that the patient requires no care until parturition commences. On the contrary the border line between what is physiological and pathological is narrow. The pregnant woman should be under constant supervision. She needs judicious advice as to her mode of living. Particular attention should be given to the dietary, exercise, rest, sleep, and clothing. In other words she must be instructed in the hygiene and management of her pregnancy.

I divide, for purposes of discussion, pregnant women

^a A Presidential Address to the Section of Obstetrics in the Royal Academy of Medicine in Ireland, delivered on Friday, November 26th, 1917.

into two classes : (1) expectant mothers living in healthy surroundings, getting sufficient food; (2) expectant mothers living in unhealthy surroundings, getting insufficient food.

The first class require only passing notice. They should be encouraged, however, to engage their medical attendant at the earliest possible time after conception, so that they can be advised as to their mode of living during the intervening months, and they should be warned of the necessity to report at once any of the following symptoms :—A scanty flow of urine, headache, constipation, black spots before the eyes, swelled feet or any loss of blood. Impressed with the good results to both mother and child obtained by a properly managed pregnancy, Dr. Whitridge Williams presents a card with printed instructions to all his patients, a practice which might be followed more widely in these countries.

Class 2.—Expectant mothers living in unhealthy surroundings with insufficient food.

That much can be done to influence the child in utero is well known and accepted; at any rate the tremendously high mortality among infants of less than a year old which prevails goes to show that many children are brought into the world very little fit to cope with the environment trials that there await them. The first steps in the direction of successful treatment of the unborn infant must be the successful treatment of the pregnant mother. She must have ample food and rest. In the British Isles there is no organised or deliberate effort to care, during the last month of pregnancy, the wives of the poorer classes. Until the State recognises its duty to the expectant mother to enable her to bring forth healthy offspring, all the efforts of humanitarians to reduce infant mortality are doomed to failure.

What expectant mothers require during the last month of their pregnancy is rest, food and instruction. How can we attempt to solve the problem of securing the needed rest, food and instruction? I suggest, through ex-

pectant mother hospitals and special dispensaries. To Dr. J. W. Ballantyne belongs the credit of being the first to advocate Pre-Maternity Hospitals. He does so in the *British Medical Journal* of April 6, 1901, in an article entitled "A Plea for Pre-Maternity Hospitals." I cannot do better than quote for you his description of the requirements of such an hospital.

The Pre-Maternity Hospital need not be a separate establishment. It may quite well be an annexe of the maternity, but it must be distinct from the maternity. It will be for the reception of women who are pregnant, but who are not yet in labour. In the first place it will be for the reception of patients who have in past pregnancies suffered from one or other of the many complications of gestation; for working women who ought to rest during the last month of pregnancy, but who are unable from financial reasons to do so, and by patients who clamour for admittance to our maternities, but who are told to come back again when the "pains have begun." It is worth while for us to realise that practically no provision is made in existing hospitals for pregnant women. In general hospitals cases of morbid pregnancy, for example, hyperemesis gravidarum, are sometimes received and treated, but mostly under protest, lest there occur a birth in the wards. In maternities pregnant women are not welcome much before the full term of gestation, for obvious reasons. Such patients would be received into the pre-maternity; it would be their special hospital. When labour pains came on they would be transferred to the adjoining maternity.

The scope of Dr. Ballantyne's pre-maternity hospital is, as you see, limited. My idea is an hospital where expectant mothers could get needful rest during the last month of their pregnancy, and where they could receive an ample supply of simple nourishing food. Such an hospital should have attached to it a competent medical officer capable of carrying out scientific observations having a bearing on the pathology of pregnancy, and the conditions that lead to malformations of infants.

I advocate the principle of expectant mother hospitals and that they should be endowed by the State. In this time of stress and scarcity of necessary foods the requirements of poor expectant mothers must be considered; their food in the words of Dr. Jellett, must be simple, ample and nourishing. Under the present economic conditions they cannot provide the proper food in ample quantities. The coming race must necessarily suffer, and the mortality of children under one year go on increasing. A scheme of this kind, to be effective, must be big and comprehensive; half-hearted measures will end only in failure.

If the State were ever to subsidise expectant mother hospitals to house the very poor expectant mothers during the last month of their pregnancy now is the time. Temporary buildings could be obtained which would tide over the immediate necessity, and later on larger and more elaborate institutions could be erected and the scheme amplified. My contention is that the coming generation must have first claim on the State. It is all very proper that Lunatic Asylums should receive a grant in aid, and that the expenses incurred by local authorities in carrying out the new treatment of venereal disease should be indemnified to the extent of 75 per cent. of their expenditure. Once the truth is brought home and pressed home that children must be saved, and can be saved, by the proper care and feeding of the expectant mother, the case is won.

Unfortunately many deserving mothers cannot for many reasons avail themselves of those hospitals; they have to work up to the time that labour begins. For such, special dispensaries should be opened, and pregnant women should be encouraged to come there and get advice. A scheme for feeding the necessitous mothers could be formulated. It is just as essential to nourish the infant through the mother during the last month of pregnancy as it is to feed the baby after birth.

It is most gratifying to know that a special expectant mother dispensary has been opened in Dublin in connection with the National Lying-in Hospital, Holles

Street. This is probably the first of its kind in Ireland, and it is maintained by private benevolence. The Master, Sir A. Horne, and Dr. R. White are to be congratulated on their enterprise. They will, I hope, give us full information of its work and their methods of instructing the expectant mothers.

What can we representatives of the Dublin Midwifery School do? I believe it is up to us to take a leading, if not the principal, part in the education of the State as to its duties towards expectant mothers.

THE SURGEON'S RESPONSIBILITY TO THE ECONOMICS OF THE HOSPITAL.

WE are indeed glad to see attention paid to this all-important point. Marvel (*Am. Jour. Obs.*, LXXV., 439) in an excellent paper, speaks of the extravagance in dressings, ligature materials, &c., which is practised in some institutions. He dwells on the large factor which post-operative morbidity bears to the economics of the hospital. The paper, which is discussed by some of the chief American surgeons, might be read with advantage by many British surgeons. B. S.

HEMI-EMBRYO POSTERIOR.

A REMARKABLY typical case of this very uncommon form of teratology is recorded by Dr. L. H. Webb (*The Charlotte Medical Journal*, Vol. LXXIV., No. 4). His patient, aged thirty-five years, was delivered on the 22nd of March, 1915, of a normal girl, weighing 8 lbs. The placenta was attached by a small cord to another mass in which he found a monster, which consisted of two lower extremities and a pelvis. The patient is the mother of seven normal children. No family history of monsters or twins on the side of either father or mother. Dr. L. H. Webb tells us that 125 such cases have been collected in Europe. But he does not give any references, and a search in the records of Paré, Hallers, Morgagni and some modern writers on teratology failed to find such a typical example as this of hemi-embryo posterior. G. M. F.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Respiratory Exchange of Animals and Man. By AUGUST KROGH, M.D., Reader in Zoophysiology, University of Copenhagen. London: Longmans, Green & Co. 1916. Royal 8vo. Pp. viii. + 173.

THIS volume is one of the series of Monographs on Biochemistry issued under the editorship of Dr. R. H. A. Plimmer and Prof. F. G. Hopkins. It may be recalled that in issuing these volumes two objects were to be kept in view, firstly—that each author should be himself working at the subject with which he deals; and secondly—that a bibliography as complete as possible should be included. In the present instance both these conditions have unquestionably been fulfilled. Dr. Krogh is known to physiologists as one of the most competent working in the field of respiration, and his list of references extends to eighteen pages of closely printed matter.

The scope of the volume is restricted in the sense that it does not include reference to the effects of functional activity on respiration.

The work is divided into nine chapters, four of which are devoted to—(1) a discussion of the significance of the exchange of oxygen and carbon dioxide in animal metabolism, (2) a description of the methods employed, (3) the exchange of other gases than those mentioned, and (4) a definition of the condition which should be recognised as a safe and practicable basis for comparison when variations in respiratory exchange occur.

Many have defined this as "basal metabolism," but Dr. Krogh objects to this term on the grounds that to obtain strict basal metabolism it is necessary to exclude all functional activity and to deal only with organs which are alive but doing no work. Clearly such a condition is

not attainable when dealing with the whole animal, since it is essential for the heart to beat, for the respiratory organs to continue in action, and also for the kidney to secrete urine. He purposes instead the term "*standard metabolism*," by which is meant a minimum of functional activity, namely—when all voluntary movements are eliminated either by anaesthetics or otherwise, and when no food is being digested or absorbed.

Having defined standard metabolism, Dr. Krogh next proceeds to consider the influence of internal factors on respiratory exchange. His general conclusions are that the central nervous system exerts no influence except by inducing functional activity, or the reverse; and hence, as a corollary, that there is no chemical regulation of heat except that produced by muscular action. The same is true in the case of internal secretions of the thyroid and sexual organs. It is less certain in the case of the pituitary body.

In the following chapter the influence of chemical factors on the respiratory exchange is discussed, dealing in order with the effects on single cells and afterwards on the entire organism. These effects are not always similar, since regulating mechanisms come into play when the circulation is intact. For instance, narcotics, which invariably inhibit oxidations in the case of single cells, have no influence in this direction on the entire organism, at least in concentrations sufficient to bring about narcosis. Hydrocyanic acid, on the other hand, powerfully inhibits in both cases. Variations in oxygen supply are also treated under this head. The author concludes that oxygen pressure is the limiting factor for tissue oxidations, but direct evidence is defective and uncertain. Diminution, however, of oxygen pressure below 85 mm. of Hg., namely—to 10-12 per cent. of an atmosphere decreases oxidations, while increase of oxygen pressure (within limits) slightly augments them, but a large increase could not be expected. The Ehrlich method of testing by means of dyes which alter their colour when reduced is untrustworthy, since such stains may be reduced in the presence of free molecular oxygen. Under ordinary conditions, however,

oxygen consumption is not affected by the tension of this gas in the surrounding medium, if this be sufficient to produce a positive pressure in the tissues of the organism.

An interesting reference is here made to anaërobic life, such as occurs in the case of parasites in the intestinal canal of higher animals. The suggestion is made that these animals obtain their nutriment by a special catabolism of carbohydrates, whereby carbon dioxide, hydrogen and fatty acids, such as valeric and caproic, are produced. These latter being secreted before concentrations are reached which would be harmful to the organism.

The next chapter deals with the influence of physical factors, such as temperature, light, electrical currents, on respiratory exchange. Perhaps the most important of these factors is temperature. Variations in this produce effects in two ways (1) through the central nervous system in response to cutaneous stimuli, (2) by direct effect on the tissues whereby alterations in the velocity of reaction may be induced. The former takes place mainly through the muscles.

The velocity of catabolic reactions increases in all animals with rising temperature, being doubled or even trebled for a rise of 10°C . That is to say, there are great departures in this respect from the Van't Hoff law for chemical reactions *in vitro*. This latter postulates a two-fold increase for every rise in temperature of 10°C . Strict conformity with the law is not, however, to be expected since tissue reactions are seldom single, but rather a complex series. Moreover, if oxygen pressure be the limiting factor for the oxidative phase or catabolic reactions, the respiratory exchange could not increase as rapidly with rising temperature as would otherwise be the case. Amongst other physical factors light and electricity have no effect if muscular movements be excluded.

In Chapter VIII. one of the subjects considered is the respiratory exchange in hibernating animals. It has long been known that the respiratory quotient in these is very low, but not so low as has frequently been claimed; the average being probably 0.6 or a little over. Nor does the author accept the belief that fat is transformed into glyco-

gen, since the amount required would be far in excess of the quantities found. On the other hand, the possibility that such a formation of glycogen can take place is undeniable. It is, however, more probable that incomplete oxidations are in the main responsible for the low respiratory quotients in hibernating animals.

The last chapter deals with the respiratory exchange of different animals. The general conclusion being that in different-sized animals of the same species, the rate of exchange per kilo increases with decreasing size and that it conforms on the whole with the so-called "surface law." By this it is meant that the loss of heat is proportional to the surface of the animal. In animals of different body temperatures there is approximately a decrease of 5 to 6 per cent. for each degree of lowered temperature.

The book as a whole is a valuable and unbiased contribution to the physiology of respiration, written in a clear and critical manner by a distinguished worker who has done much himself to advance our knowledge of the subject, and who recognises that much remains still to be done.

The Roentgen Diagnosis of Diseases of the Alimentary Canal. By RUSSELL D. CARMAN, M.D., Head of Section on Roentgenology, Division of Medicine, Mayo Clinic; and ALBERT MILLER, M.D., First Assistant in Roentgenology at the Mayo Clinic. Philadelphia and London: W. B. Saunders Co. 1917. 8vo. Pp. 558, with 504 large original illustrations.

ROENTGENOLOGISTS will be, we think, not slow to take the opportunity this book presents of learning the methods and judgments of the *x*-ray workers in the Mayo Clinic. The authors in their preface express the hope that the book will be of some practical service to their co-workers in the field of roentgenology. Of this they may rest well assured.

Very properly, but a small space is given to the description of apparatus, while by far the greater bulk

of the book is devoted to the methods employed in examining the different parts of the digestive tract—the errors to be avoided, and the conclusions to be drawn therefrom.

A valuable apology of the *x-ray* method, this volume is unsparing in exhibiting possible errors and limitations, while no less frequently indicating means for their avoidance.

In dealing with the much vexed question of what is to be regarded as the normal stomach, the authors lay much stress on the general body form or *habitus* of the particular patient under examination. Thus, a given type of stomach is to be regarded as normal or abnormal, accordingly as it does, or does not, conform to the patient's habits. The authors favour Haudek's six hour meal, using barium in place of bismuth, so that a residue has with them an increased significance.

An interesting account is given of a series of 950 cases examined independently both by the *x-ray* and by the test meal. The result was to show the Roentgen method the more sensitive test of gastric motility.

Dealing with gastric cancer, we find that in the hands of competent observers the *x-ray* method is not only a means of diagnosis, but is frequently of very marked service in determining the possibility of operative removal.

A chapter on gastric ulcer treats ably of the question of reflex and other spasms, while other chapters are concerned with more rare diseases, and post-operative changes.

In the matter of gall-stones, the authors are of opinion that a negative finding is of no import, and that undue weight has been attached to vague shadows in the region of the gall-bladder.

Coming to the small intestine, we find duodenal ulcer treated in a masterly manner. Undoubtedly great advances have recently been made in our knowledge of this condition, and the large experience and painstaking technic of Drs. Carman and Miller have undoubtedly hastened its progress.

The authors prefer in general to administer the barium by enema for examination of the large intestine.

In treating of the much vexed questions of stasis, ptosis, and "kinks," the authors believe that quite undue weight has at times been given to departures of this nature from a hypothetically normal anatomy.

The book throughout is written in an admirably judicial tone, critical and unbiased. The whole literature of the subject is well represented. The views of Case, Cannon, and Cole in America, Holzknecht, Haudek, Groedel and Becker in the European Continent; Barclay, Hertz and Jordan in England receive particular attention.

The volume is well indexed. It is printed in clear type on glazed paper, and the illustrations are not only admirably reproduced from excellent negatives, but are carefully selected, and every one apposite. We noticed only a couple of trifling misprints.

In welcoming this Transatlantic volume we can wish it no better fortune than the success it deserves.

W. G. H.

A Laboratory Manual of Organic Chemistry for Medical Students. By MATTHEW STEEL, Ph.D. First Edition. First Thousand. New York: John Wiley & Sons. Inc. 1916. 8vo. Pp. viii. + 193.

THIS manual was originally compiled as a laboratory guide in organic chemistry for the medical students of the Long Island College Hospital, Brooklyn, New York.

A special feature of this book is the provision of alternate blank pages whereon students are expected to record their own observations, and write out the answers, with the necessary formulae, to the printed questions. A useful feature in the book is that of specifying definite quantities of the reagents employed in carrying out the tests.

The book does not seem to us to be better, and is, indeed, in some respects inferior to other manuals of practical organic chemistry which have been published, *e.g.*, those by Haas and by Kellas.

The experimental work prescribed is somewhat scrappy and would not be easily intelligible without a good deal

of oral instruction and explanation. In the section on alkaloids, the bald formula for atropine, given on page 148, would surely terrify any ordinary medical student, and has no connection with the tests for its recognition.

It is not correct to state (p. 136) that "indican occurs in small quantities in normal urine, and in large quantities in certain pathological urines." This inaccuracy runs through many text-books of physiological chemistry and of clinical medicine. It is confusing to the student that the same name, without any qualification, is so often applied both to the natural glucoside found in the indigo plant, and to the allied but different compound (indoxyl-sulphuric acid) met with in urine, and which, like true indican, can be converted into indigo blue. Until a better name is devised the chromogen which occurs in urine may be styled uro-indican.

A number of misprints, due to careless proof reading, could be instanced.

Diseases of the Skin. By SIR MALCOLM MORRIS, K.C.V.O. Sixth Edition. Revised by the Author with the assistance of G. ERNEST DORE, M.D. London : Cassell & Co. 1917. Crown Svo. Pp. xv. + 770. With 10 colour and 72 black-and-white Plates.

A SIXTH edition within a few years carries with it its own testimonial, and Sir Malcolm Morris may well feel proud of the success of his excellent manual. It would be almost an impertinence to closely criticise a work which has honestly won its way by sheer merit.

Taking it all round we consider it, within its aims, the best text-book in English on Dermatology, and for many years we have recommended it to students as a well-written, reliable, and satisfactory guide.

The present edition, with the collaboration of Dr. Dore, is brought up thoroughly to date, and the directions for treatment are sensible, precise and full.

The claims of radium and of other physical methods of treatment are duly weighed and noted.

Several new plates have been inserted illustrating some of the commoner skin diseases, which, as justly remarked, are really more important than the rarer affections.

Every practitioner who desires to keep abreast of the present position of Dermatology should hasten to procure and study this admirable text-book.

W.G.S.

Practical Guide to Diseases of the Throat, Nose, and Ear.

For Senior Students and Junior Practitioners. By WILLIAM LAMB, M.D., C.M. Edin.: M.R.C.P. Lond.

Fourth Edition. London: Baillière, Tindall & Cox. 1917. Cr. 8vo. Pp. xii. + 372.

It gives us great pleasure to mention that Mr. Lamb has brought out a fourth edition of his excellent book on Throat, Nose and Ear. No great additions have been made to the text, but in the eighteen pages of new matter by which the present edition exceeds its predecessor a good many little gaps have been filled. *Inter alia*, certain risks of a serious nature, which occasionally attend the tonsil and adenoid operations—especially in hospital practice—are pointed out: the description of the submucous resection of the septum is somewhat amplified; and the intranasal treatment of fronto-ethmoidal suppuration is briefly described and illustrated. In the aural section vestibular symptoms (vertigo and nystagmus) are briefly discussed, a practical note is given on the treatment of epidermal and mixed accumulations in the meatus, and a short section is inserted upon the genesis of otorrhœa and the means of prevention. The last-named subject is one of enormous importance, and whether the view which the writer has adopted be accepted in its entirety or not, nothing but good can result from the ventilation and discussion of the question.

The principal point of the book is the fact that the author lays such stress on the mastery of the methods of examination, which, once acquired, makes all the rest follow easily.

The Journal of Hygiene. Plague Supplement V. Tenth Report on Plague Investigation in India. London : Cambridge University Press. 1917.

THIS, the tenth report on Plague in India, contains two papers which discuss the influence of climate on that disease. A series of observations on the prevalence of plague in the United Province of Agra and Oude during 1911-12, was made by Major T. H. Gloster, I.M.S., and Major F. N. White, I.M.S., with the help of assistant and sub-assistant surgeons. It contains many interesting observations on the relation of the number of cases to the density of population, to the number of rats, their susceptibility, and the average number of fleas that they harbour, and also of rats to trade, and to the origin of the food of the people. Special importance is attached to the relation between the temperature and humidity of the air and the number and longevity of rat fleas, and through them to the number of cases of plague. As the authors say :— “The association of unusual humidity during the winter months in certain districts with severe epidemics of plague is so constant a phenomenon that we feel justified in concluding that one stands to the other as cause to effect. We have further good grounds for believing that this cause exercises its effect mainly through its influence on the length of the life of rat fleas when separated from their host, for the longer a rat flea is able to survive in such circumstances the greater are its opportunities, in an infected area, for conveying the plague bacillus either to rats or to human beings.”

This observation is extended and more clearly defined by Ralph St. John Brooks, who discusses in a subsequent paper the information which has been collected to date, with a special view to the relation of the incidence of plague to temperature and humidity. He has worked out for various places and epidemics the “saturation deficiency,” or, in other words, the drying power of the air, and has come to the following conclusions :—

1. Plague does not maintain itself in epidemic form

when the temperature rises above 80° F., accompanied by a saturation deficiency of over .3 of an inch.

2. Plague epidemics are rapidly brought to an end in the presence of a high saturation deficiency, even when the mean temperature throughout and after the termination of the epidemic has been considerably below 80° F.

3. Plague epidemics may commence and increase in intensity when the mean temperature is well above 80° F., provided that the saturation deficiency is below .3 of an inch.

4. In some districts in India, and in certain tropical islands (e.g., Java, Mauritius), where the climatic conditions are at all times of the year favourable to the incidence and spread of plague, the disease may occur indifferently at all seasons.

Tropical Diseases: A Manual of the Diseases of Warm Climates. By SIR PATRICK MANSON, G.C.M.G., M.D., LL.D. (Aberd.); F.R.C.P. London; F.R.S.; Hon. D.Sc. Oxon.; &c. With 12 coloured and 4 black-and-white Plates, and 254 Figures in the Text. Sixth Edition, revised throughout and enlarged. London, New York, Toronto and Melbourne: Cassell & Co., Ltd. 1917. Cr. 8vo.. Pp. xxii+968.

AFTER a lapse of scarcely three and a half years, a new—the sixth—edition of this classical work was published on October 25th of the present year. Its predecessor was reviewed in the number of the Journal for August, 1914 (Vol. 138, No. 513, third series, p. 128). Little remains to be added to what was then stated as to the great merit of Sir Patrick Manson's "Tropical Diseases."

In the preface to the present edition Sir Patrick points out that among the more important accessions to our knowledge of Tropical Medicine within the past three and a half years are those relating to the extra-corporeal life-history of *Schistosomum haematobium*—the parasite which causes endemic haematuria—which we owe to Dr. Leiper's recent remarkable work in Egypt, and the demonstration that Denige Fever is conveyed by *Stegomyia calopus*.

As to *Schistosomum haematobium* and *Schistosomum mansoni*, Leiper has shown, in 1916, that the ciliated larvae (*miracidia*) of these parasites, after escape from the egg, enter a fresh-water snail: in the case of *S. haematobium*, a *Bulinus*; in the case of *S. mansoni*, *Planorbis boissyi*—small molluscs abounding in the irrigation canals of Egypt. The future life-history of the infecting organisms is fully described at pages 745-748 of Sir Patrick's book. Both snails and miracidia are figured in the text.

That the virus of dengue is conveyed by *Stegomyia calopus*—the domestic mosquito—has been definitely proved by a series of experiments “well conceived and carefully carried out” recently in Australia by Drs. Cleland, Bradley, and McDonald.

The foregoing are additions to this edition, but the entire work has undergone careful revision, and its contents have in several instances been re-adjusted. Of the latter change notable examples are the transference of Rat-Bite Disease from the section on General Diseases of Undetermined Nature to that on Fevers, and contrariwise the transference of Pellagra from Fevers to Section II., where it figures, in consort with beri-beri and epidemic dropsy, as a “general disease of undetermined nature.”

With the history of this work from May, 1898, to the present date before us, to recommend it as a reliable Manual of the Disease of Warm Climates is an easy and a grateful task.

The Indian Operation of Couching for Cataract. Incorporating the Hunterian Lectures, 1917. By ROBERT HENRY ELLIOT, M.D., B.S, Lond.; Sc.D. Edin.; F.R.C.S. Eng., &c., Lieut.-Col. I.M.S. (Retired). London: H. K. Lewis & Co., Ltd. 1917. Royal 8vo. Pp. xii. + 94.

THIS is a very thorough and painstaking account of the operation of couching for cataract—an operation “so old that its origin is lost in the dim mists of antiquity.” For though Celsus was the first author whose account has come

down to us, still there can be no doubt that the operation was practised centuries before Celsus. In the course of the book Col. Elliot gives most interesting accounts of the technique, describing fully the anterior (through the cornea), and the posterior (through the sclerotic) operations. The statistics of the results noted by various European observers are embodied in Chapter IV., and shows that in only 10.59 per cent. cases was the vision $\frac{3}{4}$ rd and upwards. In 11.05 per cent. the vision was $\frac{1}{4}$ th to 1-10th, in 9.64 per cent. it was 1-10th to 1-50th, and in 7.05 per cent. it was a finger count at two feet or less. All, with correcting lenses. These results are, needless to say, very poor indeed, and to be noted in addition are the short histories of the successful operations. For many of these couched cases are lost later on in their history, from glaucoma, iridocyclitis, detachment of the retina, &c.

One of the best chapters in the book is that on the pathological anatomy of couched eyes, in which 54 eyes have been examined, and some excellent photographs made; clearly showing the various pathological conditions following the operation of couching.

Although Col. Elliot considers that he has not fully exhausted this field of investigation, we venture to think that this book of his will long remain the standard work on the subject.

Insanity in Every-Day Practice. By E. G. YOUNGER, M.D. Brux; L.R.C.P. Lond.; D.Ph., &c.; Senior Physician, Finsbury Dispensary. Fourth Edition. London: Baillière, Tindall & Cox. 1917. Cr. 8vo. Pp. x. + 134.

THREE years have elapsed since the publication of the third edition of this excellent introduction to the study of Insanity in Every-day Practice. That issue was reviewed in the number of this Journal for September, 1914, and the favourable opinion which we then expressed of the book is confirmed, and even strengthened, so far as the present edition is concerned.

In cordially recommending Dr. Younger's book to the members of the profession, we should mention that the fourth edition has been carefully revised. The author, with the desire to bring it thoroughly up-to-date, has added short sections on neurasthenia, and on the new psychiatry, or psycho-analysis, that much debated system which takes its popular name from Professor Sigmund Freud, of Vienna, its first exponent. The only fault we have to find with these added sections is that they are so short. We agree, however, with Dr. Younger, when he tells us that, "Whatever its psychological interest, psycho-analysis is not likely to be of assistance in such cases of insanity as are likely to be met with in general practice" (page 121).

Glaucoma. A Handbook for the General Practitioner. By ROBERT HENRY ELLIOT, M.D., B.S. Lond.; Sc.D. Edin.; F.R.C.S. Eng., &c., Lieut.-Col. I.M.S. (Retired), &c. London : H. K. Lewis, & Co., Ltd. 1917.

It is a moot point whether "a busy medical practitioner" will derive a great deal of benefit from this book. Col. Elliot has devised the best operation we know for the relief of glaucoma (other than acute), but though he does not insist unduly upon his own operation, and describes all those commonly performed for the relief of glaucoma, yet we think that he is asking too much of the aforesaid practitioner when he expects him to make use of the book. In other words, we think that for such a circle of readers the book is too deep and voluminous, while for ophthalmic surgeons it is not deep enough. However, the picture of glaucoma, and the various methods of combating it, are well laid down, and let us hope that Col. Elliot's non-exhaustive treatise (of which he speaks in his preface) will soon appear.

1. *The Sexual Instinct: its Use and Dangers as affecting Heredity and Morals. Essentials—the Welfare of the Individual and the Future of the Race.* By JAMES FOSTER SCOTT, B.A. (Yale University); M.D., C.M. (Edinburgh University); late Obstetrician to Columbia Hospital for Women, and Lying-in-Asylum, Washington, D.C.; late Vice-President of the Surgical Association of the District of Columbia, &c., &c. Second Edition, Revised and Enlarged. London: Sydney Appleton. 1908.
2. *The Irony of Marriage.* By BASIL TOZER. With an Introductory Note by DR. C. W. SALEEBY, F.R.S. Edin. London: Rebman, Limited. 1908.

THESE volumes were laid aside at the time of their arrival, as the demands on our critical columns happened to be more than usually pressing—and the first hasty glance at the contents suggested that they should yield in the matter of precedence to those whose titles and contents were less likely to elicit any mental leanings towards the desirability of a general censorship. But the amateurist “censor-”ious faculty of the average British citizen has—very visibly, indeed—dwindled down since then, and such contributions to scientific and general literature are now thoroughly appreciated by the most highly representative and accomplished critics, both lay and medical (as well as theological!) For in those strenuous days, when Malthusianism has donned its most gruesomely practical aspect, the claims of the first, and only positive, commandment issued to our first parents by their Divine Creator, can no longer be ignored by any reasoning adult who is dowered with a sense of moral and civic responsibility. Whether due to our superior sense of propriety and modesty, our more advanced mental refinement and puritanical self-restraint, or (as many of our Continental contemporaries preferred to phrase it, even long before the present battle of the world’s nations) our disagreeable insular reserve, or our blatant pharisaical hypocrisy, the fact is undeniable that our edu-

ecational standpoint in this department has for some generations been maintained at a far lower level than that of any other fully civilised modern community. One of the results of the terrible cataclysm which is now in progress has been the inevitable exposure of our weakness in this most important domain ; as well as, very obviously, to effect a very rude awakening from the semi-lethargic state into which we had allowed the contemplation and direction of all questions regarding sexual hygiene and eugenics to gravitate. Those questions—of unsurpassed interest for the present generation, and of undeniably foremost importance for the “coming race”—have been studiously screened off from the undesired examination of the citizen who was clamouring for his unmattained vote ; and, of course, thought his intuitive view regarding all such matters at least “as good as any other man’s”—and in the majority of instances, a great deal better. But we would take the opportunity of suggesting that, as the opportunities for discussion have thus been thrown open—without reserve—to the previously untrained “general,” they should not be permitted to furnish corroboration of the statement which has more than once been made, that Anglo-Saxon coarseness in the manipulation of these topics usually out-distances that of the other communities : displaying its Teutonic kinship, without the characteristic Teutonic thoroughness ; and a worthily Gallic appreciation of erotic licence and aberration, without the Gallic clarity and artistry of expression, and unrivalled culinary skill. In this connection, the expert reader has had the opportunity of contrasting the earnestness and unaffected dignity of the enunciations of Ellen Key with the recent recommendations (in the columns of one of our most popular weekly newspapers) of an English lady’s apostleship of the judicious utilisation of “part of a husband.” The first “world war” is upon us, and its existence is apparently going to be more prolonged—as its consequences most assuredly shall be—than any of us could well have anticipated. Thus it has become

more than ever emphatically desirable that the sense of duty should be more assiduously than ever cultivated at home—and it must surely be admitted, in the light of present strenuous conditions, that one of the foremost items of this duty should consist in a tireless culture of knowledge, in all its departments and correlations: and a scrupulous pooling and application of the garnered results: for the rehabilitation of contemporaries, and the intellectual and physical security and advancement of collective posterity. The average voter of ante-bellum times, who generally performed his reading while running, would be little likely indeed to sight the kernel of truth enclosed in the paradoxical aphorism of the grand old Ephesian Greek: *πόλεμος πατὴρ πάντων* (any more than he could recognise by his unaided physical vision the universal truth of the central dogma of his philosophy: *πάντα ῥεῖ*). But Heraclitus was a thorough Greek in his appreciation of *άρμονία*, which he believed to be attainable only by and through the perpetual antagonism of contraries. Thus we can recognise the stability of his view-point that the universal element of which all existing matter consisted was FIRE, *only*: *πῦρ ἀεὶ ζωόν, ἀπτόμενον μέτρῳ, καὶ ἀποσβενύμενον μέτρῳ*. This restless element was in eternal movement; alternately flaring up and extinguishing itself, spontaneously. Perhaps the philosophic historian of the future may be found to utilise this view as an illustration of the life history of nationalities. There may also be recognised therein something suggestive of the undulations of ethical dogma and its representative literature. And let the reader recall that some of the greatest *foundations* were prepared and corroborated by fire: the conflagration of Rome solidified the foundations of Christianity, by providing the vivifying agency of the blood of the martyrs; that of London, provided for the foundation of modern urban hygiene; and that of Moscow proved to be the foundation of modern progress in the semi-barbaric Russian Empire. We thus live in a world apparently fore-

doomed to ceaseless unrest, and the greatest of all practical mistakes, individual or national, is the transitory forgetfulness of this fact—and the consequent lapse into "unpreparedness." So we should hail with equanimity the advance of every new wave—in science and in literature, as well as in politics—while endeavouring to safeguard ourselves from its possibly destructive violence, and applying our best skill and knowledge towards the utilisation of the energy and stimulating power which it always conveys.

1. The questions associated with "The Sexual Instinct," which form the subject-matter of the first of the two volumes open before us, have now unavoidably secured a more conspicuous position "in the *public eye*" than had been accorded to the same at any previous period. The devout moralist and the patriotic politician are equally concerned in the present regulation and future adjustment of the conditions which have given rise to the current *lay* journalistic discussions of venereal diseases, war babies, and bi-weekly semi-husbands—as well as in those of State-aided provision for filling up the vast breaches made in the ranks of humanity by this unholy war, and the careful improvement of the stock from which so appallingly disproportionate a number of the best and *fittest*—the bravest and most virtuous, the most brilliant and accomplished, the most honourable, the most patriotic, and the most intellectual, have been irreplaceably removed. Dr. Scott opens his preface with a statement of dignified candour: "This book contains much plain talking, for which I offer no defence. Its justification will be found in the body of the work." And the skilled reader cannot fail to admit that he has taken conscientious pains in making up his brief, and spared himself no trouble in the completion of his self-imposed task. He divides his text into fourteen chapters; the first of which deals with the subject-matter connoted by the general title, and the last with "Marital and Extra-Marital Intercourse." Throughout the whole the concomitant leverage of moral suasion is vigorously exercised. And in addition to

the presentation of the collective results of research, he takes pleasure in the introduction of originality where apparently eligible. At the opening of the second chapter ("Physiology of the Sexual Life") he divides the course of human existence into seven stages; but, although adopting the Hippocratic numeral, he re-arranges the temporal milestones: making his first stage intra-uterine, the fourth to terminate at the approach of puberty, and the final seventh to include an indefinite Old Age—while each of the others is also (disproportionately) modified. He, very judiciously, associates—in the first sentence of his first chapter—the primary instinct of Self-Preservation with the Sexual; but should have stressed the fact that the Divine Creator has thought proper, in His inscrutable wisdom, to dower the human being—as animal—with the *gastric appetite* of Hunger, as a permanent safeguard for the preservation of the individual, and the *sexual appetite* of Love (or "Lust") for insurance of the preservation of the species. To these statements of ethico-physical fact it should in this connection be added that: the human animal differs from all others in the characteristic that sexual desire is always present; and that it is to this unique feature, more than to any other, that humanity owes its characteristic sociability, its capability of trained adaptation to the complex conditions of large communities, and—consequently—its mastery over the rest of the animal kingdom, its capability of progressive enlightenment, and continuously expanding conquest of the opposing, and so often very unfriendly, powers of Nature. And as every gift conferred upon Man seems to have its off-setting drag, we are unfortunately indebted to this peculiarity for some of the most degrading experiences by which the history of the human race has been tarnished. Even the roughly moral Samuel Johnson seemed to regard the "social evil" as an unavoidable one; and we would here add parenthetically an expression of our own belief that the *degradation* of the "fallen sister" is rather the ashy fruit of the labours of Mrs. Grundy than of the sin of the erratic

mother. The "insularity" of our island practice is obvious to the experienced; we should add, however, that Morel (of *cosmopolitan* research) found a certain, most highly intellectual, North British centre the most advanced and most comprehensively "Cyprian" of all! A few hours run (before torpedo times) brought the tourist to Antwerp, one of the most Babylonian of communities, as so vast a seaport was foredoomed to be; Brussels was readily reached, the city consecrated to the national "Mamekin" (one of whose leading novelists dedicated a story to: "Oscar Wilde, the poet and pagan martyr to Protestant prejudice"); if he moved on to Germany, he found the native unattractiveness offset by thoroughness of inspection and certification; in Paris he found the high-grade intellectuality of the accomplished (very far from degraded) *demi-mondaine*—in dress *designed by man* to increase her magnetic powers—by whom France has always been governed; on passing to Italy, he was met by the supersubtle accomplishments and aesthetic gifts of the corresponding representative of what many believe to be the most loveable of all national types; if he proceeded westward to Cadiz, he soon heard of houses of reception provided with partners of either sex; if he turned north-eastward, to Buda-Pesth, he found every conceivable (and many a perhaps previously unconceived) item of sexual luxury cultured to the status of a fine art; on passing to the central metropolis of Russia, he had an opportunity of appreciating the ultra-imperial dignity and unaffected grace of the actress *Етаипа* of Moscow: the acknowledged priestess of the shrine of Venus, who was approached as a superior being; who had obviously imported—and progressively evolved—the choristic and aesthetic accomplishments of her Byzantine (Hellenistic) predecessors; and whose unique position enabled her to display the deportment of a gracious Princess—which her sister of Paris took care to inspect periodically, and endeavour to import. With such facts the moral reformer has to deal when facing the complex conditions of his missionary work! Surely, charity and hygiene should be his principal weapons!

2. Mr. Tozer's book is not, of course, medical. But it is highly instructive, and moral—in the best and broadest sense of this much abused epithet; the author is evidently a thoroughly accomplished and informed man of the world, whose insularity has been well smoothed down by social friction and travelled experience. He knows his subject, and is a past-master of the art of diction: so that we have the most solid reasons for recommending it to medical readers—who should surely take a prominent position in the moral and social education of the future.

K.

The British Journal of Ophthalmology.

In January, 1917, by the incorporation of *The Royal London Ophthalmic Hospital Reports*, *The Ophthalmic Review*, and *The Ophthalmoscope*, *The British Journal of Ophthalmology* was started upon a course which we all hope will be long and illustrious. Yet, notwithstanding the incorporation of the above three journals to act as a base, we very much doubt whether the present Journal would ever have seen the light of day, unless it had been cherished and succoured by one who, alas! is no more with us. To the indomitable energy and perseverance of the late Mr. W. H. H. Jessop (then President of the Ophthalmological Society of the United Kingdom) is due the fact that to-day we have a journal worthy of British ophthalmology. Unfortunately he lived only long enough to see the Journal started.

The Journal is edited, under the supervision of a committee, by Mr. Sydney Stephenson, with Mr. Erskine Henderson as sub-editor, and considering that we are in the throes of the greatest war in the history of the world, the published articles maintain a high level.

We wish the Journal long life and great success.

PART III. MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

YELLOW FEVER IN COLOMBIA AND VENEZUELA.

By GEORGE M. FOY, M.D., F.R.C.S.I.

THE *Boletin de Medicina e Higiene de Barranquilla* devotes a double number (14, 15, of 1917) to the subject of yellow fever in the Republics of Colombia and Venezuela. These countries were in 1907 and 1908 the site of a severe epidemic of yellow fever, which was the subject of a medical commission. After careful examination of 120 cases in which the blood was microscopically examined, and numerous autopsies were made, the following report was issued:—“(1) The epidemic of 1907 which prevailed in the district of Muzo was the product of a mixed infection of yellow fever and spirochaetal fever. These two entities exist endemically in the region, and are kept alive and are propagated by the presence of individuals not immune to the cold land. (2) Yellow fever in Muzo has, from an ætiological point of view, some peculiar characteristics.

“(a) It is contracted in the woods and not in the vicinity of dwelling-houses.

“(b) It is transmitted by the *Stegomyia calopus* and probably some other Culicinæ.

“(c) The infections occur during the hours of the day during which the mosquitoes are most active.

In their report of the mosquitoes observed in the district of Muzo, the Commission of 1907 stated that many pure specimens of the Culicinæ are found in the miners' dwellings, although they are much more plentiful in the woods and on the mountains. Nor does it follow that 5 per cent. of these Culicinæ belong to the class Stegomyia; all are *Culicidos*, and many are of the genus *Culex*. Besides these is the *Stegomyia calopus*, which is the more numerous. There is also an analogous *Culex*, which is known in Japan as the *Culex aureostriatus*. These mosquitoes sting by day, and it is said during the twilight and at dawn, so that infection is possible during the whole day.

Examination of the blood in these cases for Hæmatozoa *pellucida* gave negative results.

“We found,” writes the Commission, “all types of yellow

fever, from the abortive and the mildest febricula—more frequent in children—to the fulminant form which rapidly ends in death."

Dr. Toro Villa, the historian of yellow fever in Colombia, writes:—"From the facts we were able to gather concerning Muzo from persons who lived in that place prior to the first appearance of the outbreak until 1885, the year it was epidemic in Honda, it would appear that the disease was caused by the arrival of the troops from Costa; from that town it spread to Muzo, carried by soldiers who went to the mines to secure their pay. Muzo is a few leagues distant from Honda, the intervening space being mountainous, with few bridle paths, and covered by woods; the temperature being not less than 25 degrees C. under the average mean of the country. The district is uninhabited, except along its borders. On the mountain paths many travellers have met their death, or have succumbed to the mountain fogs, of which the inhabitants live in dread.

"In this region at the time of the outbreak there was stationed one visitor, who came to the medical sanatorium under the direction of Dr. Roberto Franco to study the cause of the fatalities, which were the subject of much controversy. By investigation at the hospital to which he had the honour to belong, he fully demonstrated that it was the true yellow fever which had visited the place, and associated with it was the spirochaetal form—described for the first time in Colombia by Dr. Franco. Under the direction of the hospital he initiated many schemes of prophylactic and mechanical protection, finally securing such scientific successes that he was able in a short time to stamp out the epidemic."

The immense importance of Dr. Roberto Franco's discovery may be estimated from Dr. W. C. Gorgas' pronouncement in 1904, when he took charge of the Panama Isthmus Sanitary Commission. "The experience of our predecessors was ample to convince us that unless we could protect our force against yellow fever and malaria we should be unable to accomplish our work." In the June of the following year, "a feeling of alarm, almost amounting to a panic, on the death of nineteen workmen engaged on the Panama Canal excited much interest, for our American brethren recognised that until the cause of yellow fever were rooted out their great Inter-oceanic Canal could not be a success. The Canal was completed in 1912, and the sanitary measures adopted had

stamp out malaria and yellow fever in the canal zone, when news came of an epidemic of the yellow fever in the mining districts of Colombia. The Rockefeller Foundation International Health Board immediately issued a Yellow Fever Commission, of which Dr. W. C. Gorgas was Chairman, and Drs. Carter, Guiteras, Lyster, Whitmore, and Wrightson were members. On their arrival at Bogata they were informed by Dr. Buendia, Secretary of the Central Council of Hygiene, that a case of yellow fever existed in Muzo, that the epidemic was extending and had a high mortality rate. The Commission visited the Muzo mines, and very carefully examined the sanitary condition of the region and failed to find a single case of acute disease in the seventy persons engaged there. Dr. Angueira, the local physician, said that during the year he had attended five cases of yellow fever, one of which proved fatal on July 20th; one the day previous; and three cases occurred in May last, one of which died. But he had no notes of any case but one, that of Señor Velasquez, who died on the 28th of July. From the history of the Velasquez case the Commission formed the opinion that the Señor did not die of yellow fever but from an aestival malaria. The two other patients who died were chronic cases of paludism.

The case of Velasquez is given with great fulness, to show that the diagnosis of yellow fever was based on the fact that the day before the patient died "he vomited a small quantity of a black substance, about six ounces more or less, of a coffee colour with a sediment of granular matter."

The Secretary of the Muzo mines informed Dr. W. C. Gorgas that all of the seventy men in employment had suffered from fever, although at the time of speaking none of them were ill. He also said that in 1912 in an isolated messroom twelve cases of an acute fever occurred, of which eight died; at that time the cases were certified as of yellow fever. The secretary himself had suffered from several attacks of fever during his life in the district. Some six or seven hundred men were employed in the mines prior to their being closed, the greater number of whom came from the higher altitudes and suffered much from fever, and some came from the littoral, and some from the valley of the Magdalena. These took fever immediately on their arrival at the mines; and, in the opinion of the Commission, were

more susceptible to the disease than those from the highlands.

The colonel in charge of the military guard said the troops were frequently laid up with fever; from which he himself suffered many times. He said that a short time previously he made an excursion with a picket of sixteen men, one and all of whom contracted the fever.

Some of the cases examined by Dr. Guiteras led to a difference of opinion. Drs. Henao and Toro Villa being inclined to pronounce them as yellow fever, the viscera were sent to Drs. Balfour and Stevenson of London, who pronounced them to be wanting in the characteristics of that fever.

Dr. W. C. Gorgas then published the following deductions at which the Commission had arrived.

1. In the district of Muzo there are no *Stegomyiae*; we were not able to procure a specimen, although no steps have been taken to destroy this mosquito.

2. From the history of the cases referred to by the attendant, and "more still from the impossibility of infection, in the absence of *Stegomyia*," it is necessary to conclude that there is no trace of yellow fever. "The existing fever is undoubtedly paludal." One of the patients is considered to be immune from yellow fever, having suffered from fever, according to his own statement, and having been treated for the same by Dr. Franco in 1908.

3. Without doubt, "it may be imprudent to give an opinion on the diagnosis of these cases, owing to the facts incidental to them being incomplete and imperfect. Had we been able to see the patients we should have been more decided. Nevertheless from the ascertained facts we are inclined to think they were cases of malarial fever of the æstival type."

This conclusion was controverted by Drs. Henao, Montoga, Flores, and Toro Villa, who stated that the Tacamochs-patians were carriers, sober men, in the employment for ten years. They had no enlargement of the spleen; their livers were not painful on pressure; they had taken no purgatives; they were not, prior to this, hospital patients, and they further add Manson's statement that there are *Culex* transmitters of yellow fever besides *Stegomyia*.

In the month of October, 1916, at a conference of the Medical Association, Dr. Juan Guiteras, Chief Sanitary Officer of the Republic of Cuba, who made Havanna a health resort from having been a pestiferous city, gave an address on yellow fever, in which he stated that some medical authorities tell us that for years past they have been familiar with the disease, which they have studied in all its forms, and in many different countries. They speak of a new type of the disease, an attenuated form of the fever, which cannot be recognised, and that this form exists in some places without being diagnosed, or even suspected. Further, that it, under unknown conditions, assumes great virulence and manifests the classic symptoms of yellow fever. This theory has been put forward by laboratory research workers—men who had no clinical experience of yellow fever. Such findings are totally different from their experience of the disease in Cuba, Mexico, Panama, and the United States of America. He does not deny that there is a mild form of the fever, indeed he was the first to point out the importance of recognising the fact that such mild cases maintained the fever as an endemic and propagated its epidemic form. For many years he has held, not only in reference to yellow fever, but equally in regard to small-pox, measles, and scarlatina, that there are—and he has seen—very mild cases which escape recognition, and which are met with amongst those of normal type and amongst malignant ones. These physicians however, speak not of such cases, but of a special type of the disease, although their patients exhibit no symptom of the disease. They, however, may present symptoms resembling yellow fever, such as those of dengue, six day fever, or the fever accompanying phlebitis, and this he does not recognise as yellow fever. After this he proceeds to examine in great detail the cases which are credited with causing epidemics of the disease. On the coast of Colombia the Commission fixed upon Barranquilla as the port of greatest business between Colombians and strangers of temperate countries. There, if anywhere, he expected to find yellow fever. The Commission did not find a single case, and were of opinion that for many years no case had occurred in the port, and this in spite of the registration certificates which still record deaths from the fever.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—R. D. PUREFOY, M.D., F.R.C.S.I.

General Secretary—J. A. SCOTT, M.D., F.R.C.S.I.

SECTION OF MEDICINE.

President—H. C. DRURY, M.D., F.R.C.P.I.

Sectional Secretary—G. E. NESBITT, M.D., F.R.C.P.I.

Friday, October 26th, 1917.

THE PRESIDENT in the Chair.

Sporotrichosis.

DR. WALLACE BEATTY read a paper on this rare skin affection, and showed a patient who had recently been under his care for this disease. It was the first case with which he has met.

The patient, a boy aged $15\frac{1}{2}$ years, worker in a brush factory, got injured on the front of his wrist by a piece of bass. Red inflammatory swellings occurred up the front of the forearm and inner side of the arm. These swellings were united by a hard lymphangitic cord. Pus obtained from one of the swellings by means of a hypodermic needle and syringe was introduced into a tube of maltose-agar (Sabouraud's); a typical culture of Sporotrichum resulted, the culture being at first white, then brown, then black.

PROFESSOR E. J. MCWEENEY expressed his gratitude to Dr. Beatty for having placed at his disposal a culture of the Sporotrichum. He set up pure cultures from single spores isolated in hanging drops of $\frac{1}{2}$ per cent. maltose-agar. The germs germinated very rapidly, most of them producing germ tubes within 24 hours at room temperature. Spore formation began in about 48 hours. He found the best method of staining was Weigert's or Heidenhain's haematoxylin, carefully washed out with dilute ferric chloride. There were somewhat indistinct mitotic figures seen in the dividing nuclei. He found that maltose was not necessary, the spores germinating quite well on glucose-agar, and even on agar without the addition of any sugar. He had compared Dr. Beatty's specimen with a culture isolated some years ago

by Professor James Ritchie, of Edinburgh, which was an authentic *S. beurmanni*, and found no difference. He had seen a somewhat similar case, which was under the care of Mr. H. S. Meade, at St. Vincent's Hospital. There were nodules along the line of the lymphatics of the forearm, which suppurated and broke down. He thought it was a case of sporotrichosis, but it proved to be one of an ectothrix ringworm. The patient was a shepherd, and had probably acquired the disease from sheep.

DR. WALTER G. SMITH said he had been on the look-out for a case of the disease for some years, and he heartily congratulated Dr. Wallace Beatty on his being the first in Ireland to recognise one. Three affections might be confounded with it—syphilis, tuberculosis, and purulent inflammation, but the diagnosis could be readily made by means of the methods illustrated. It was a satisfactory fact that it could also be cured—namely, by potassium iodide.

DR. C. M. O'BRIEN commented on the age of the patient. He thought the disease was commoner in older subjects.

Paroxysmal Hæmoglobinuria.

DR. BEWLEY showed the urine from a case of this disease. The patient, a man of about 60 years, otherwise healthy, had for six or eight years occasionally—sometimes for a day or two at a time, sometimes only for one micturition—passed bloody urine. The urine showed no blood cells, but contained abundant methæmoglobin in solution: on standing a sediment of fine granules was deposited; no tube-casts. The attacks seemed always brought on by cold. The passage of bloody urine was preceded for a short time by chilliness and lumbar pain. The man, although liable to these attacks, remains in good health. He (Dr. Bewley) drew attention to the curious fact that Roberts, in his excellent description of the disease ("Urinary and Renal Diseases"), states that the blood-colouring matter in the urine is oxyhæmoglobin, while recent observers state that it is methæmoglobin. In this case it was always methæmoglobin. There was no history of syphilis in this case.

THE PRESIDENT recalled a case which he saw as a student, and which he had observed carefully. The general features

were the same as those of Dr. Bewley's case. An attack invariably followed any slight exposure, even going out of doors, and the patient could accurately anticipate its onset.

DR. CROFTON asked whether any bacteriological examinations of the urine had been made. He had frequently found organisms present in cases of nephritis which had cleared up with vaccine treatment.

DR. BOXWELL had recently under his care a soldier, to whom he ordered salicylate of sodium. An attack of haematuria immediately followed its exhibition. This was proved by a second trial when the first attack cleared up. At first blood was present, but later the corpuscles disappeared, and the urine remained a deep brown colour for some time. The spectroscopic appearances were negative.

DR. W. G. SMITH said it was a rare disease in Ireland. He had seen only two or three cases—two being in boys. The pathology of the condition was quite obscure; but it was evidently connected with haemolysis, the factors governing which were very imperfectly known. These might be divided into physical, chemical, and biological, the last being the most interesting.

SECTION OF OBSTETRICS.

President—ALFRED SMITH, M.B., F.R.C.S.I.

Sectional Secretary—B. SOLOMONS, M.D., F.R.C.P.I.

Friday, November 2nd, 1917.

THE PRESIDENT in the Chair.

Ovarian Tumours.

DR. REGINALD WHITE showed three tumours of the ovary which had undergone malignant change. They were removed from patients aged 40, 45 and 55 years respectively; one patient had been operated on three years previously for simple ovarian tumour. In all three the growth was very rapid, and was associated with pain. Free fluid was present in the peritoneal cavity in one case. In one case both ovaries were removed, in another the left ovary had been removed three years previously, and in the third case the second ovary was so atrophied that it was not removed.

PROFESSOR MCWEENEY drew attention to the difficulty of deciding as to the histogenesis of these multilocular cystomata of the ovary, which is, of course, a mesoplastic structure. He raised the question as to whether they ought not to be classed with the teratomata.

DR. GIBBON FITZGIBBON said he thought the naked-eye appearance of two of the tumours strongly suggested a malignant character, and that at operation they should be treated as such. Owing to the probability of the same form of growth developing in the other ovary it should be removed. The second specimen bore out this belief; it having developed in a patient from whom an ovarian tumour was removed three years previously.

DR. BETHEL SOLOMONS thought that the state of affairs in regard to ovarian tumours was most unsatisfactory. It seemed to be impossible for a skilled pathologist to decide if these tumours were potentially malignant. He had removed papillomata microscopically benign, and malignant metastases had followed, while microscopically malignant tumours had had no such after history. He considered that in this field there was much room for investigation.

THE PRESIDENT said that clinically speaking in his experience malignant tumours of the ovary were bilateral. It was difficult to explain how some malignant tumours, irrespective of size, were associated with ascites and others were not.

THE PRESIDENT OF THE ACADEMY also spoke.

PRESIDENT'S ADDRESS.

On Eugenics limited to the care of Pregnant Women.

THE PRESIDENT said pregnant women were divided into two classes. (1) Expectant mothers living in healthy surroundings getting sufficient food; (2) expectant mothers living in unhealthy surroundings getting insufficient food. The first class he dealt with generally. The second class requires ample food and rest as the first step in the direction of successful treatment of the unborn infant must be the successful treatment of the pregnant mother. How can we attempt to solve the problem of securing needed rest, food and instruction? He suggested:—By means of expectant

mother hospitals and special dispensaries, which should be endowed by the State. He contended that the coming generation must have first claim on the State. He pointed out that lunatic asylums get a grant in aid, and that local authorities in carrying out the new treatment of venereal disease will be indemnified to the extent of 75 per cent. of their expenditure. It is just as essential to nourish the infant through the mother as it is to feed the baby after birth. [This Address appears in full at page 352.]

SIR ANDREW HORNE said there is no subject more important at the present moment than the care of expectant mothers and of infant life. In order to counteract the high mortality of infants occurring in our city during the past few years, two important societies have been formed, namely—the Babies' Clubs and the Infant Aid Society. I am pleased to say, from the most recent statistics of the Registrar-General, that already a considerable diminution has taken place. The establishment of special dispensaries for the care and treatment of expectant mothers will be the means of saving the lives of a large number of mothers during childbirth, as also of their infants.

DR. BETHEL SOLOMONS said that he did not believe that women of the so-called lower classes would enter pre-maternity hospitals. If they could be persuaded to come to dispensaries regularly during their pregnancies and have the urine tested it would be a step in the right direction. Although it was important that the pregnant woman should be fed properly he was doubtful if this feeding had much effect on the new-born infant, for the most starved mothers often have healthy, weighty infants, while the best-fed women often have weaklings. The best step from a eugenic point of view would be to improve the housing, and to promote the general education of the poorer classes. In the baby club of which he was the physician he was able to instruct mothers about pregnancy, and the nurse of the club visited the women in their homes in order to see that these instructions were carried out. Although he had seen evidence of maternal impressions in the infant, he thought that the solution of this problem had still to be elucidated.

DR. CRAWFORD said that pre-maternity work would become efficient only when some system of registration had been

established by means of a State grant to women in the last months of pregnancy. The best method of education of pregnant women would be the pre-maternity dispensary working in association with a trained nurse, who would visit the women in their homes.

DR. NEILL said that the establishment of pre-maternity hospitals would allow of the early diagnosis of syphilis and of its treatment.

PROFESSOR McWEENEY pointed out that such a hospital as that contemplated would afford an excellent opportunity for ascertaining the existence of latent syphilis amongst expectant mothers. Blood could be taken from those whose history gave ground for suspicion, and submitted to the Wassermann test. The hospital or dispensary could become a centre for the gratuitous diagnosis and treatment of syphilis as contemplated under the new V. D. Order of the Local Government Board. Under this Order they could get their expenses recouped as to 75 per cent. of the total amount, from Imperial sources. A great deal of congenital syphilis might thus be effectively dealt with at an early stage.

DR. WHITE thought it would be difficult to get the mothers to leave their homes to go to pre-maternities, and more good could be done if expectant mothers got better food at home, which might be done under the new regulations of the L.G.B. Referring to Professor McWeeney's remarks, Dr. White agreed that much might be done by making the existing maternity centres for carrying out of the new anti-syphilitic regulations suggested by the L.G.B.

DR. GIBBON FITZGIBBON said the subject of pre-maternal care was very large, and required to be dealt with chiefly by a wide process of education. It was impossible to form any opinion of the benefit to be obtained from the results of the methods tried in the last few years. The process of education required should begin in the medical profession, and students should be taught the importance of advising their maternity patients to report themselves all through their pregnancies. He did not think much benefit would be obtained from having special wards in the maternity hospitals for the reception of pregnant women during the last month of pregnancy, as at that time the results of neglect were

established. Treatment early in pregnancy was wanted to prevent the conditions from which the complications arise, and this probably could best be done by encouraging the women to report at the existing extern dispensaries in connection with all hospitals. Those that did attend would act as an example to others, and gradually do away with the belief that pregnancy did not require any attention until the time labour set in. Pre-maternity care or neglect did not appear to have much influence upon the new-born infant, but the existing unhealthy conditions continued after the birth of the child, and then acted adversely to the health of the infant.

HYDATIDIFORM MOLE AND CHORIONEPITHELIOMA.

In a paper on this subject dealing especially with anatomical variations, relations, and clinical significance Caturani (*Am. Jour. Obs.*, LXXV., 591) concludes as follows :—(1) We cannot accept as absolutely correct the plan of unification of Larrier and Brindeau, which makes of hydatidiform mole the first stage, not necessarily followed by the second, chorionepithelioma, on the belief of the common anatomical and physiological behaviour of the elements in both conditions. But the more we find reproduced in hydatidiform mole the features of the primitive chorion (vacuolated syncitium, Langhan's layer in active mitosis, comparative disappearance of the connective tissue core of the villus), the proliferation assumes a very suspicious significance. (2) The real evidence of the malignant tendencies of hydatidiform mole can be obtained by a close investigation of its relation with the maternal structures. (3) The invasive mole deserves to be credited as a form of passage to chorionepithelioma. Most of them are real transitional forms, and the best denomination to be assigned to them is that of chorion adenoma malignum. (4) The core of the villus is not to be considered as a factor of exclusion in the diagnosis of chorionepithelioma. (5) The reduction of the classification of Marchand to two types, syncitoma and chorionepithelioma, finds an almost uniform support in the study of the statistics, as it seems to exactly correspond to the anatomical constitution of chorionic tumours, and has a decided prognostic significance.

B. S.

SANITARY AND METEOROLOGICAL NOTES.

VITAL STATISTICS.

For four weeks ending Saturday, November 3, 1917.

IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended Saturday, November 3, 1917, in the Dublin Registration Area and the eighteen principal provincial Urban Districts of Ireland was 13.7 per 1,000 of the aggregate population, which for the purposes of these returns is estimated at 1,127,268. The deaths from all causes registered in the week ended Saturday, November 3, and during the period of four weeks ended on that date, respectively, were equal to the following annual rates per 1,000 of the population :—Nineteen Town Districts, 13.7 and 13.4 ; Dublin Registration Area, 15.4 and 15.0 ; Dublin City, 16.2 and 16.2 ; Belfast, 12.5 and 12.5 ; Cork, 19.7 and 13.4 ; Londonderry, 10.4 and 12.0 ; Limerick, 17.6 and 13.6 ; and Waterford, 11.4 and 9.0.

The deaths from certain epidemic diseases—namely, enteric fever, typhus, small-pox, measles, scarlet fever, whooping-cough, diphtheria, dysentery, and diarrhoeal diseases—registered in the nineteen town districts during the week ended Saturday, November 3, 1917, were equal to an annual rate of 1.1 per 1,000. Among the 94 deaths from all causes in Belfast were 1 from enteric fever, 1 from whooping-cough, 1 from scarlet fever, and 6 from diarrhoea and enteritis of children under 2 years. The 13 deaths from all causes registered in Limerick included 1 from scarlet fever and 1 from diarrhoea and enteritis in a child under 2 years. Of the 3 deaths from all causes registered in Kilkenny 1 was from measles.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock and Kingstown. The population of the area is 399,000.

In the Dublin Registration Area the births registered during the week ended November 3, 1917, amounted to 168—81 boys and 87 girls, and the deaths to 133—76 males and 57 females.

DEATHS.

The deaths registered, omitting the deaths (numbering 15)

of persons admitted into public institutions from localities outside the Area represent an annual rate of mortality of 15.4 per 1,000 of the population. The rate for all deaths registered during the forty-four weeks of 1917 ended November 3 was 21.2, while in the corresponding period of the preceding ten years, 1907-1916, it had been 22.5.

The 118 deaths appertaining to the Area included 3 from measles, 1 from diphtheria, 1 from dysentery, and 7 from diarrhoeal diseases, including 6 of children under 2 years old. In the three preceding weeks deaths from measles had numbered 1, 2 and 1; from diphtheria 3, 0 and 1; and deaths from diarrhoeal diseases 12, 8 and 6, respectively. No deaths from dysentery had been registered during the 3 preceding weeks.

Tuberculosis caused 21 deaths, as against 13, 12, and 14, respectively, in the three weeks preceding. Of the 21 deaths ascribed to tuberculosis, 15 were referred to pulmonary tuberculosis, 3 to meningeal tuberculosis, and 3 to other forms of tuberculosis.

Nine deaths were caused by cancer, 10 by pneumonia (4 by broncho-pneumonia, 2 by lobar pneumonia, and 4 by pneumonia, type not distinguished); 8 by organic diseases of the heart, and 13 by bronchitis.

Among deaths of infants under one year old, 6 were ascribed to convulsions, 1 to premature birth, 2 to congenital debility, 2 to congenital malformations, and 6 to diarrhoea and enteritis.

Three deaths were due to violence, including 1 death caused by gun shot wound.

Twenty-eight of the deaths registered during the week appertaining to the Area were of children under 5 years of age, 22 being infants under one year, of whom 2 were under one month old. Twenty-nine deaths of persons aged 65 or upwards were registered, including 22 deaths of persons of 70 years or upwards.

Of the 118 recorded deaths 53 occurred in hospitals and other public institutions.

STATE OF INFECTIOUS DISEASES.

The following returns of the number of cases of Infectious Diseases notified under the "Infectious Disease (Notification)

Act, 1889," and the "Tuberculosis Prevention (Ireland) Act, 1908," have been furnished by the respective sanitary authorities —

TABLE I.—SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area—(viz., the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock and Kingstown), and in the Cities of Belfast, Cork, Londonderry, Limerick, and Waterford, during the week ended November 3, 1917, and in each of the preceding three weeks.

A dash (—) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Measles	Total												
			Rubella or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain) ^a	Enteric or Typhoid Fever	Erysipelas	Puerperal Fever	Whooping-cough	Cerebro-spinal Fever	Poliomyelitis	Pulmonary Tuberculosis
City of Dublin	Oct. 13	—	—	—	7	—	—	—	1	—	—	—	—	19	38
	Oct. 20	—	—	—	4	—	—	—	—	—	—	—	—	14	30
	Oct. 27	—	—	—	6	—	—	—	—	—	—	—	—	11	30
	Nov. 3	—	—	—	10	—	—	—	—	—	—	—	—	11	30
Rathmines and Rathgar Urban District	Oct. 13	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	Oct. 20	—	—	—	1	—	—	—	—	—	—	—	—	—	1
	Oct. 27	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Nov. 3	—	—	—	3	—	—	—	—	—	—	—	—	—	3
Pembroke Urban District	Oct. 13	—	—	—	—	—	—	—	—	—	—	—	—	1	1
	Oct. 20	2	—	—	—	—	—	—	—	—	—	—	—	5	5
	Oct. 27	—	—	—	2	—	—	—	—	—	—	—	—	3	3
	Nov. 3	—	—	—	—	—	—	—	—	—	—	—	—	—	9
Blackrock Urban District	Oct. 13	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Oct. 20	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Oct. 27	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Nov. 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Kingstown Urban District	Oct. 13	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Oct. 20	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Oct. 27	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Nov. 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City of Belfast	Oct. 13	—	—	—	8	—	—	—	1	5	2	—	—	—	21
	Oct. 20	—	—	—	13	—	—	—	4	4	2	—	—	—	24
	Oct. 27	—	—	—	12	—	—	—	1	6	5	—	—	32	62
	Nov. 3	—	—	—	12	—	—	—	3	7	4	—	—	6	34
City of Cork	Oct. 13	1	—	—	1	—	—	—	1	—	—	—	—	—	3
	Oct. 20	—	—	—	2	—	—	—	1	—	—	—	—	—	5
	Oct. 27	—	—	—	1	—	—	—	1	—	—	—	—	—	2
	Nov. 3	—	—	—	1	—	—	—	1	—	—	—	—	—	3
City of Londonderry	Oct. 13	—	—	—	4	—	—	—	—	—	—	—	—	—	4
	Oct. 20	—	—	—	3	—	—	—	—	—	—	—	—	—	—
	Oct. 27	—	—	—	15	—	—	—	—	—	—	—	—	—	16
	Nov. 3	—	—	—	7	—	—	—	1	—	—	—	—	—	11
City of Limerick	Oct. 13	—	—	—	—	—	—	—	—	2	—	—	—	—	2
	Oct. 20	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	Oct. 27	—	—	—	4	—	—	—	—	—	—	—	—	—	4
	Nov. 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City of Waterford	Oct. 13	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	Oct. 20	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	Oct. 27	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	Nov. 3	—	—	—	—	—	—	—	—	—	—	—	—	—	1

^a Continued fever.

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN
HOSPITALS.

Table II. exhibits the number of cases of certain infectious diseases treated in the Dublin Hospitals during the week ended November 3, 1917, and the number under treatment at the close of each of the three preceding weeks.

TABLE II.

Diseases	No. of Cases in Hospital at close of the week ended			Week ended November 3.				No. under treat- ment at close of week	
	Oct. 13	Oct. 20	Oct. 27	No. admitted	Dis- charged	Died			
Enteric Fever	32	30	31	2	3	—	—	30	
Typhus	—	—	—	—	—	—	—	—	
Small-pox	—	—	—	—	—	—	—	—	
Measles	11	8	12	2	2	—	—	12	
Scarlet Fever	33	37	34	14	5	—	—	43 ^a	
Diphtheria	21	23	26	4	2	1	—	27	
Pneumonia	26	23	24	8	6	—	—	26	

* Exclusive of 6 patients in "Beneavin," Glasnevin, Dublin, the Convalescent Home of Cork Street Fever Hospital.

From this Table it appears that the cases admitted to hospital during the week ended November 3, and the cases under treatment at its close, respectively, were as follows:—Enteric fever, 2 and 30; measles, 2 and 12; scarlet fever, 14 and 43 (exclusive of 6 convalescents at Beneavin, the Convalescent Home of Cork Street Hospital); and diphtheria,

4 and 27. Eight cases of pneumonia were admitted during the week, and 26 remained under treatment at its close.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, November 3, in 96 large English towns (including London, in which the rate was 13.0) was equal to an average annual death-rate of 12.6 per 1,000 persons living. The average rate for 16 principal towns of Scotland was 12.3 per 1,000, the rate for Glasgow being 11.9, and that for Edinburgh 15.2.

INFECTIOUS DISEASES IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended November 3. From this Report it appears that of 75 cases notified, 30 were of scarlet fever, 23 were of diphtheria, 13 of pulmonary tuberculosis, 6 of other forms of tuberculosis, and 3 of erysipelas. Among the 361 cases of infectious diseases in hospital at the close of the week were 132 of pulmonary tuberculosis, 104 of scarlet fever, 74 of diphtheria, 13 of whooping-cough, 6 of measles, 6 of erysipelas, 2 of cerebro-spinal fever, and 2 of enteric fever.

METEOROLOGY.

*Abstract of Observations made in the City of Dublin, Lat. 53° 20'
N., Long. 6° 15' W., for the Month of October, 1917.*

Mean Height of Barometer, - - -	29.707	inches.
Maximal Height of Barometer (19th, at 9 a.m.),	30.211	"
Minimal Height of Barometer (12th, at 11 p.m.),	28.910	"
Mean Dry-bulb Temperature, - - -	45.1°.	
Mean Wet-bulb Temperature, - - -	43.1°.	
Mean Dew-point Temperature, - - -	40.8°.	
Mean Elastic Force (Tension) of Aqueous Vapour,	0.255	inch.
Mean Humidity, - - -	85.4	per cent.
Highest Temperature in Shade (on 1st), - -	66.0°	
Lowest Temperature in Shade (on 29th), - -	31.0°.	
Lowest Temperature on Grass (Radiation) (29th)	26.0°.	
Mean Amount of Cloud, - - -	47.3	per cent.
Rainfall (on 24 days), - - -	2.600	inches.
Greatest Daily Rainfall (on 3rd), - - -	0.569	inch.
General Directions of Wind, - - -	W., W.S.W.	

Remarks.

Cold and unsettled weather prevailed during the greater part of this month, which was signalised by the number of atmospheric depressions which travelled in rapid succession in an easterly, rather than a north-easterly, direction across the Atlantic and north-western seaboard of Europe. Over the British Isles the wind blew from westerly points of the compass almost without intermission, and the force of the wind was often strong, notably in the gale of the 24th. The coldness of the month is all the more noteworthy, seeing that October opened with a perfect summer's day, reminiscent of June rather than of the wintry month which it introduced. After the 2nd temperature gave way quickly, and Friday the 5th was 13° colder than Monday the 1st.

Very broken, rainy, wincy, cold weather was prevalent during the period from the 7th to the 15th inclusive. Then came a finer and milder spell, in which the thermometer rose in the screen to 57.0° in the night of 20th-21st. On the 22nd the weather again became rough and cold. A severe gale from S.W. to W. prevailed on the 24th, and on the afternoon of the next day a squall swept up from W.N.W., accompanied by a heavy shower of rain, hail, and by thunder and lightning. Night frosts were experienced after that day until the 30th. The month closed with a rising temperature, a calm damp atmosphere, and a vapour fog.

The mean height of the barometer was 29.707 inches, or 0.133 inch below the corrected average value for October—namely, 29.840 inches. The mercury rose to 30.211 inches at 9 a.m. of the 19th, and fell to 28.910 inches at 11 p.m. of the 12th. The observed range of atmospheric pressure was, therefore, 1.301 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 45.1° , or 11.0° below the value for September, 1917. The arithmetical mean of the maximal and minimal readings was 46.4° , compared with a thirty-five years' (1871-1905) average of 49.5° . Using the formula, $Mean\ Temp. = Min. + (Max. - Min.) \times .485$, the mean temperature was 46.2° , or 3.1° below the average mean temperature for October, calculated in the same

way, in thirty-five years, 1871-1905, inclusive (49.3°). On the 1st the thermometer in the screen rose to 66.0° —wind, S.S.W. ; on the 29th the temperature fell to 31.0° —wind S. On the 28th the minimum was 31.1° —wind, W. The minimum on the grass was 26.0° on the 29th—wind, S.

In Dublin the mean maximal temperature was 52.4° , compared with the average (54.7°) ; and the mean minimal temperature was 40.4° , compared with the average, 44.3° . The arithmetical mean temperature (46.4°) was 3.1° below the average (49.5°) ; the mean dry-bulb readings at 9 a.m. and 9 p.m. were 45.1° . In the fifty years ending with 1915, October was coldest in 1892 (M. T. = 44.8°) and in 1896 (M. T. = 45.0°). It was warmest in 1908 (M. T. = 55.4°) and in 1912 (M. T. = 54.9°). In 1906 the M. T. was 52.0° .

The rainfall was 2,600 inches, distributed over 24 days. The rainfall was under, but the rain-days were much above, the average. The average rainfall for October in the 35 years, 1871-1905, inclusive, was 2,870 inches, and the average number of rain-days was 18. In 1880 the rainfall in October was very large—7.358 inches on 15 days. In 1875, also, 7.049 inches fell on 26 days, and in 1916, 5.951 inches fell on 24 days. On the other hand, in 1904, only 0.454 inch fell on 11 days, in 1890 only 0.639 inch fell on but 11 days, in 1884 only 0.834 inch on but 14 days, and in 1868 only 0.856 inch on 15 days.

High winds (force 4 to 7) were noted on 17 days, and on 4 days (3rd, 7th, 8th, and 24th) attained the force of a gale (force 8 or upwards). The atmosphere was foggy in Dublin on the 31st. There were solar halos on the 5th and 11th, rainbows on the 2nd, 8th and 30th, and a lunar rainbow was seen at 5 10 a.m. of the 30th. Hail fell on the 5th, 17th, 23rd, and 25th ; sleet on the 23rd, and a little snow on the morning of the 28th. Thunder and lightning accompanied a heavy hail-shower at 4 15 p.m. of 25th. Sharp hoar frosts occurred on the 27th and 28th.

Mr. C. M. Connolly reports that at the Normal Climatological Station in Trinity College, Dublin, the mean height of the barometer at 9 a.m. and 9 p.m. was 1007.1 millibars (29.74 inches), the range being from 1023.2 millibars (30.22

inches) at 9 a.m. of the 19th to 981.1 millibars (28.97 inches), at 9 p.m. of the 12th. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 46.7°. The arithmetical mean of the daily maximal and minimal temperatures was 46.4°. The screened thermometers rose to 68° on the 1st and fell to 29° on the 29th. On the 29th the grass minimum was 19°. Rain fell on 23 days to the amount of 2.490 inches, the greatest fall in 24 hours being 0.594 inch on the 3rd. The mean temperature of the soil at 9 a.m. at a depth of one foot was 50.0°; at a depth of 4 feet it was 53.2°. The duration of bright sunshine was 118.5 hours, or a daily average of 3.8 hours. On the 1st there were 8.6 hours of sunshine, and on the 9th 8.1 hours.

Captain Edward Taylor, D.L., returns the rainfall at Ardgillan, Balbriggan, Co. Dublin (height above sea level, 210 feet), as 3.21 inches on 21 days, the largest measurement in one day being 0.43 inch on the 3rd. The heaviest rainfall in October at Ardgillan was 7.33 inches on 24 days in 1916; the least heavy fall was 0.55 inch on 14 days in 1904. The rainfall was 0.30 inch above the average, and the rain-days were 4 in excess of the average. From January 1 to October 31 the rainfall at Ardgillan has been 25.78 inches on 170 days, or 2.11 inches above the average, while the rain-days were 16 in excess of the average. The highest shade temperature in October was 65.2° on the 1st; the lowest was 29.1° on the 28th.

At Stirling, Clonee, Co. Meath, Mr. J. Pilkington registered a rainfall of 4.37 inches on 25 days, the largest daily measurement being 0.86 inch on the 3rd. From January 1 to October 31, 1917, rain fell on 172 days to the amount of 27.84 inches. This station stands 231 feet above sea-level. October, 1916, established a record for rainfall at Stirling, Clonee, the amount was 8.00 inches on 26 days.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was 2.79 inches on 20 days, the greatest fall in 24 hours being 0.595 inch on the 3rd. Up to October 31st the rainfall in 1917 at Malahide amounted to 22.435 inches on 152 days.

At the Ordnance Survey Office, Phoenix Park, Dublin, the

October rainfall was 3.31 inches on 27 days. The heaviest fall in 24 hours was 0.650 inch on the 3rd. The total amount of bright sunshine was 123.2 hours, the maximal duration on any one day being 9.8 hours on the 1st.

Mr. F. C. Joynt registered 2.580 inches of rain on 22 days at 89 Anglesea Road, Donnybrook, Dublin, the largest measurement in 24 hours being 0.495 inch on the 3rd.

The rainfall recorded by Miss Mary Love at Cheeverstown Convalescent Home, Clondalkin, Co. Dublin, was 3.25 inches on 24 days. The heaviest rainfall in 24 hours was 0.71 inches on the 3rd.

Dr. Arthur S. Goff reports that rain fell on 25 days at Belfort House, Dundrum, Co. Dublin, the total amount being 2.19 inches, of which 0.46 inch was measured on the 3rd. The temperature range was from 70° on the 1st to 32° on the 28th and 29th. The mean temperature in the shade was 46.7°. Thunder and lightning and hail showers occurred on the 25th.

Mr. W. J. McCabe, on behalf of the Right Hon. Laurence P. Waldron, D.L., returns a rainfall of 1.89 inches on 18 days at Marino, Killiney, Co. Dublin. The heaviest fall in 24 hours was 0.29 inch on the 4th. The average October rainfall at Clonkeevin, Killiney, in the 24 years, 1885-1908, was 2.985 inches on 17.2 days.

Mr. Harold Fayle sends the following weather report for October, 1917, from Sandford Lodge, Ranelagh, Co. Dublin :—

Mean corrected Height of Barometer,	-	29.712 inches.
Highest corrected reading (19th, 9 hours),	-	30.22 ,,
Lowest corrected reading (12th, 21 hours),	-	28.94 ,,
Mean Dry-bulb Temperature, -	-	45.1°.
Mean Wet-bulb Temperature,	-	43.3°.
Mean Vapour Pressure,	-	8.7 mil.
Mean Humidity,	-	86 per cent.
Mean Maximal Temperature, -	-	53.2°.
Mean Minimal Temperature, -	-	39.4°.
Arithmetical Mean Temperature,	-	46.3°.
Highest Temperature in Screen (1st),	-	70.0°.
Lowest Temperature in Screen (29th),	-	27.4°.
Lowest Temperature on Grass (29th),	-	18°.
Nights of Ground Frost,	-	12

Rainfall (on 22 days), -	-	-	-	2.59 inches.
Greatest Daily Rainfall (3rd),	-	-	-	0.51 ineh.
Mean Amount of Cloud,	-	-	-	53.7 per cent.
Days of Clear Sky, -	-	-	-	7
Days of Overcast Sky, -	-	-	-	7
General Directions of Wind, -	-	-	-	W., N.W.

Maximal temperature reached 60° or over on the 1st and 2nd only ; it did not reach 50° on six days ; the month was windy on the whole.

At Coolagad, Greystones, Co. Wicklow, Dr. J. H. M. Armstrong, M.B., measured 2.96 inches of rain on 25 days, the maximal falls in 24 hours being 0.48 inch on the 29th and 0.43 ineh on the 4th. A gale from the W.N.W. prevailed on the 24th. From January 1st to October 31st, 1917, the rainfall at Coolagad amounted to 26.16 inches on 166 days.

Dr. Armstrong reports that a beautiful meteor was observed at 6 35 p.m. on the 1st. It traversed the sky from east to west-north-west at a low altitude above the horizon, and had a flat trajectory. It was of a clear, yellowish green colour, and it left a brilliant track of light in its course.

Hail fell at Coolagad on the 5th, 8th, 23rd, 25th, and 26th. Distant thunder and lightning occurred on the 13th and 14th. The Welsh mountains were seen on the mornings of the 3rd and 28th. Snow fell on Djouee Mountain on the 10th (2,384 feet).

Mrs. Sydney O'Sullivan recorded 2.42 inches of rain on 20 days at Auburn, Greystones, Co. Wieklow, the greatest rainfalls in 24 hours being 0.45 ineh on the 29th and 0.40 inch on the 4th.

Dr. F. O'B. Kennedy, Resident Medical Officer, reports that 3.10 inches of rain fell on 20 days at the Royal National Hospital for Consumption for Ireland, near Newcastle, Co. Wicklow. The maximum in 24 hours was 0.45 inch on the 29th. The mean temperature of the month at the hospital was 46.3° , the extreme readings of the shade thermometer being—highest, 63° on the 3rd ; lowest, 32° on the 28th and 29th. The mean maximal temperature was 53.3° , the mean minimum was 39.2° .

The Rev. Canon Arthur Wilson recorded a rainfall of 6.99

inches on 28 days at the Rectory, Dunmanway, Co. Cork. It was a very damp month, with constantly recurring showers and mist. Frequent strong winds from N.W. and N.E. were experienced. Sharp frost occurred on the nights of the 26th and 27th, and snow lay on the mountains on the morning of the 28th. The weather of the last two days was milder. The heaviest daily falls in the month were 0.91 inch on the 3rd, 0.77 inch on the 20th, and 0.70 inch on the 11th. The total rainfall for the completed 19 months of 1917 is 41.94 inches, compared with an average for the last 12 years of 46 inches, and a fall of 51.53 inches in 1915, and 49.47 inches in 1916.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF
PHILADELPHIA.

THE College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about two hundred and fifty dollars, will be made on July 14, 1918, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in Medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the Secretary of the College, Francis R. Packard, 19 South 22nd Street, Philadelphia, Pa., U.S.A., on or before May 1, 1918. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award. The Alvarenga Prize for 1917 has been awarded to Dr. Wilburt C. Davison, Baltimore, for his essay entitled: "The Superiority of Inoculations with Mixed Triple Vaccine (B. typhosus, B. paratyphosus A, and B. paratyphosus B) over successive Inoculations with the single Vaccines, as shown by Agglutinin Curves in Men and Rabbits."

PERISCOPE.

THE TREATMENT OF ECLAMPSIA, WITH SPECIAL REFERENCES
TO VAGINAL AND ABDOMINAL SECTION.

IT is extraordinary that a routine treatment cannot be established for eclampsia. The conservative treatment has accomplished the best results, and still radical methods are recommended by such writers as Brodhead (*Am. Jour. Obs.* LXXV., 762), whose conclusions are that conservative medical and obstetrical treatment will give the best results in the hands of the general practitioner, that early vaginal section skilfully performed for cases of eclampsia up to the last six weeks of pregnancy, and abdominal section, especially in primiparæ, but occasionally in multiparæ, with living children late in pregnancy, with unchanged cervices, and particularly with large children and slightly contracted pelvis, will offer the best plan of treatment. It should be understood, however, that the operation, to be most successful, should be performed as soon as possible after the first seizure, and with a minimum of vaginal manipulation. In the following paper Spalding (*ibid.*, 772) recommends practically the same methods.

B. S.

THE RELATION OF SO-CALLED ETHER PNEUMONIA TO PELVIC
AND ABDOMINAL SURGERY.

WE find it difficult to agree with Darnall (*Am. Jour. Obs.*, LXXV., 426), who suggests that the term "æther pneumonia" should be forgotten. He says when pneumonia follows abdominal operations it is a secondary infection of the lung following a septic abdominal condition. Pneumonia post-operation may be due to an infection already existing in the bronchi or lungs at the time of operation or to imperfect aëration and ventilation of the lungs by reason of the fear of taking deep breaths after laparotomy; but in most cases the pneumonia is a secondary infection of the lung following a septic abdominal condition.

B. S.

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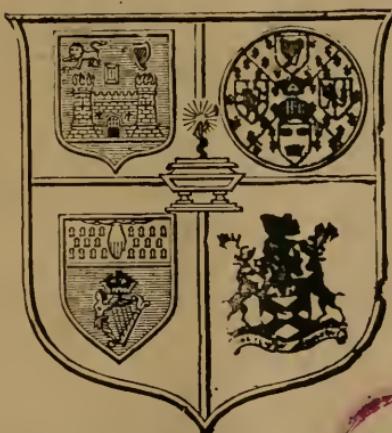
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